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FACTORS DETERMINING GROUP STEREOTYPES*

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LUTFY N. DIAB

A. INTRODUCTION

Among a number of possible dimensions (4), the stereotypes attributed to other groups and their members may lie anywhere on a continuum of favourable-unfavourable dimension. The favourability or unfavourability of stereotypes assigned to other groups is determined by a number of factors which function as anchorages in the stereotyping process. As Sherif and Hovland state, ". . . internal factors, as well as aspects of the external stimulus situation, may function as anchors in the placement of an item" (7, p. 127). Consequently, similar factors may function as anchors in determining the nature and kind of group stereotypes attributed by members of one group to other groups and their respective members.

Sherif and Sherif point out that "the concept *reference group* arose from the necessity of ascertaining precisely the groups which provide the main anchorages for experience and behavior" (8, p. 175). If reference groups provide the main internal anchorages for the experience and behaviour of individuals, it becomes highly essential to obtain such information about the reference group memberships of subjects used in studies of group stereotypes. Such information will enable us to predict the nature and kind of stereotypes attributed to outgroups, particularly in the light of the nature of group relations existing between the subjects' reference groups and the outgroups in question. Thus, it was found that members of different religious and political groups in the Arab Middle East attributed different stereotypes to certain known national groups (1), resulting from differential reference group memberships and depending on the nature of relationships among the various groups involved.

Apart from reference group memberships and the nature of intergroup relations as factors determining group stereotypes, there are also certain aspects of the external stimulus situation which must be taken into consideration in studies of group stereotypes. The bulk of findings on racial and national stereotypes has been arrived at mostly through the use of the Katz and Braly

* Received in the Editorial Office on March 18, 1963, and given special consideration in accordance with our policy for cross-cultural research.

technique (3). Furthermore, and in almost all cases, the number and kind of national or ethnic groups presented to the subjects has been representative of all the various possible positions on the social-distance scale. Thus, two further related questions can be raised here concerning the nature of external stimulus factors determining national stereotypes. The *first* question may be stated as follows: Would the stereotyping of certain known groups differ if the list of groups presented to the subjects did not include those groups representing the "low anchor" or "unfavourable end" of the social-distance scale? This question was answered in the affirmative when significant differences in stereotyping certain groups were obtained between two equated samples of subjects, one sample being presented with groups representing the various positions possible on the prevalent social-distance scale, while the other sample was presented with a list of groups from which was excluded all those groups falling on the "unfavourable end" of the social-distance scale (2). The *second* related question may be stated as follows: Would the stereotyping of certain known groups differ if the list of groups presented to the subjects did not include those groups representing the "high anchor" or "favourable end" of the prevalent social-distance scale? This study is an attempt to answer this question on group stereotypes.

B. METHOD

1. Subjects

The sample consisted of two groups, each of which was composed of 50 male undergraduate Arab-Moslem students at the American University of Beirut. All subjects used in this sample "approve" or "strongly approve" of "Arab unity" and of "socialism."

2. Procedure

The Katz and Braly technique (3) was used in this investigation. The procedure was essentially as follows: A mimeographed questionnaire in the Arabic language was presented to the subjects under two different conditions:

a. Condition A. The first page of the questionnaire consisted of 99 adjectives arranged alphabetically. The subjects ($N = 50$) were instructed to read over carefully the list of adjectives before proceeding to the rest of the questionnaire. The other pages requested the subjects to select from the first page as many adjectives as seemed necessary to best characterize each of the following 13 groups: Turks, Russians, Negroes, Chinese, Italians, French, Germans, Americans, English, Japanese, Jews, Lebanese and Irish. Subjects were permitted to add adjectives of their own if the list on the first page

seemed insufficient. "Directions on the last page instructed the students to go back over their characterizations and select five words which seemed most typical of each group" (6, p. 238). In line with previous studies, the five adjectives so selected were the only ones used in the tabulations.

b. *Condition B.* This condition was similar to "Condition A" in all respects except one, namely, in the *number* and *kind* of national groups presented. Under this condition, an equated group of subjects ($N = 50$) was asked to characterize each of the following 5 groups: Jews, Turks, Negroes, Chinese, and French. All of these five groups appeared also under "Condition A," and they constitute the "low anchor" or "unfavourable end" of the social-distance scale.

Under both conditions, background information on the subjects enabled us to select two groups of 50 subjects each, i.e., 100 subjects altogether, all of whom were Moslem Arab students in favor of a socialistic unified Arab World.

C. RESULTS AND DISCUSSION

The results of this study are presented in Tables 1 through 3. Our main concern in this investigation is with the five national groups which appeared under both conditions, namely, Jews, Turks, French, Chinese, and Negroes. Under the first condition (i.e., *Condition A*), these five groups were presented to the subjects along with eight other groups, making a total of 13 different national groups, and representing the various positions possible on the prevalent social-distance scale. Table 1 shows the adjectives most frequently assigned to these five groups only, since the results for the remaining groups are not relevant to this study. Under the second condition (i.e., *Condition B*), the same five groups were presented to the subjects, but they were the only groups which the subjects were asked to characterize. Table 2 shows the adjectives most frequently assigned to these five groups under the second condition.

Now, if the samples used under the two above conditions can be considered as drawn from the same population, particularly concerning factors relevant to the stereotyping process, then any differences in stereotyping the same national group must be attributed to differences in data collection procedures. Since the samples were made up of subjects that were as homogeneous as possible, in terms of factors relevant to stereotyping groups (i.e., reference group memberships), we are forced to explain differential stereotyping of the same national group in terms of external stimulus factors related to the technique used for obtaining stereotypes. As may be seen from Table 3, differences in the stereotyping of the same national group under the two

TABLE 1
 THE ADJECTIVES MOST FREQUENTLY ASSIGNED BY 50 MOSLEM ARAB STUDENTS OF THE
 MIDDLE EAST WHO ARE "PRO-PAN-ARAB SOCIALISM" TO FIVE DIFFERENT
 NATIONAL GROUPS (CONDITION A)
 (Numbers refer to per cent of subjects listing each adjective)

Jews	Turks	French			
base	54	militaristic	28	tyrannical	30
stingy	52	coarse	22	emotional	28
sly	32	strong	22	base	24
materialistic	30	fanatic	22	selfish	20
opportunistic	28	tyrannical	20	aggressive	18
mercantile	26	courageous	16	reckless	18
mean	26	stubborn	16	materialistic	18
selfish	22	mean	14	mean	14
deceitful	20	base	14	nervous	12
aggressive	20	nervous	14	oppressive	12
Chinese		Negroes			
simple	28	simple	44		
poor	26	feel inferior	32		
selfish	24	patient	30		
patient	20	down-trodden	22		
nationalistic	18	poor	22		
peaceful	16	ignorant	18		
energetic	14	superstitious	18		
strong-willed	14	backward	18		
clever	12	enslaved	16		
revolutionary	12	sportsmanlike	14		

conditions were found to exist, although the effects differed from one group to another. However, on the whole, the differences were uniformly in the same direction. It is with these differences that the present study is mainly concerned, and the following sections will center on the presentation and discussion of these differences (Table 3).

On the whole, and as may be seen in Table 3, the picture of the Jews and the Turks appears to have been the least subject to change, in contrast to the stereotyping of the French, Chinese, and Negroes which appeared to have varied considerably from one condition to another. Of the ten most frequently assigned adjectives to Jews, nine of them were listed under both conditions. The only instance of change was the replacement of the adjective "opportunistic," which is clearly unfavourable, by a new adjective "rich," which is clearly favourable (5). In the case of the Turks, there were six out of the ten most frequently assigned adjectives that changed from the first to the second condition. However, the changed stereotypes do not seem to indicate a change in the already existing unfavourable picture of Turks. Thus, one may conclude here that the stereotyped picture that our subjects have concerning Jews and Turks does not seem to be affected to any appreciable

TABLE 2
 THE ADJECTIVES MOST FREQUENTLY ASSIGNED BY 50 MOSLEM ARAB STUDENTS OF THE
 MIDDLE EAST WHO ARE "PRO-PAN-ARAB SOCIALISM" TO FIVE DIFFERENT
 NATIONAL GROUPS (CONDITION B)
 (Numbers refer to per cent of subjects listing each adjective)

	Jews	Turks	French	
base	44	poor	44	sociable
deceitful	38	fanatic	26	artistic
sly	34	backward	20	cultured
stingy	34	strong	20	emotional
aggressive	26	militaristic	18	democratic
mean	26	conservative	18	reckless
materialistic	24	superficial	16	tyrannical
selfish	22	simple	16	political
rich	20	tyrannical	16	aggressive
mercantile	18	religious	14	musical
	Chinese		Negroes	
poor	24	feel inferior	34	*
doctrinaire	22	simple	28	*
revolutionary	22	poor	26	*
superstitious	22	fun-loving	16	*
enigmatic	18	strong	14	*
self-sacrificing	16	courageous	14	*
patient	16	strong-willed	14	*
religious	14	musical	14	*
militaristic	14	patient	14	*
industrial	12	sportsmanlike	14	*

degree by the kind of techniques employed. It may be stated in this connection that the attributes associated with Jews and Turks have been internalized by our subjects to such a degree that this internal anchorage, which is characterized by strong negative ego involvements, functions in such a way that rules out any possible effect that external stimulus factors may have produced.

Sherif and Hovland state that ". . . the attributes associated with groups placed in acceptable categories are predominantly favourable. Attributes associated with rejected groups are largely unfavourable" (7, p. 199). This statement would hold true if equated groups of subjects are asked, at the same time or at varying intervals of time (1, 8), to characterize a list of groups representing the various gradations on a scale of acceptance-rejection. However, as our results show, this statement does not seem to hold if variations are introduced in the external anchorages presented to the subjects, i.e., if the list of groups to be characterized are not representative of the various possible positions or categorizations on the acceptance-rejection scale of the subjects. Thus, even though the statement was found to be still applicable in the case of Jews and Turks, where strong ego involvement of subjects operates, it does not hold true in the case of the French, the Chinese,

TABLE 3
 DIFFERENCES IN STEREOTYPES ATTRIBUTED TO FIVE DIFFERENT NATIONAL GROUPS UNDER
 EACH OF TWO DIFFERENT CONDITIONS
 (Numbers refer to per cent of subjects listing each adjective)

National Group		Condition A		Condition B
Jews	opportunistic	28	rich	20
Turks	coarse	22	poor	44
	courageous	16	backward	20
	stubborn	16	conservative	18
	mean	14	superficial	16
	base	14	simple	16
	nervous	14	religious	14
French	base	24	sociable	28
	selfish	20	artistic	24
	materialistic	18	cultured	24
	mean	14	democratic	22
	nervous	12	political	16
	oppressive	12	musical	14
Chinese	simple	28	doctrinaire	22
	selfish	24	superstitious	22
	nationalistic	18	enigmatic	18
	peaceful	16	self-sacrificing	16
	energetic	14	religious	14
	strong-willed	14	militaristic	14
Negroes	clever	12	industrial	12
	down-trodden	22	fun-loving	16
	ignorant	18	strong	14
	superstitious	18	courageous	14
	backward	18	strong-willed	14
	enslaved	16	musical	14

and the Negroes. The stereotyped picture of these three groups changed from a predominantly unfavourable one under the first condition to a predominantly favourable one under the second, keeping in mind that equated samples of subjects were used under both conditions.

The greatest amount of change was found in the case of the French. Similar changes, but less dramatic in nature, were found in connection with the stereotypes of Negroes and Chinese (Table 3). The French picture under the first condition was, among other things common to both conditions, mostly unfavourable. They were pictured as "base, selfish, materialistic, mean, nervous, and oppressive." In contrast to this rather quite unfavourable picture, the French were described under the second condition, apart from four unfavourable adjectives which were common to both conditions, as being "sociable, artistic, cultured, democratic, political, and musical." Furthermore, it may be added here that one of the unfavourable adjectives which was attributed to the French under both conditions, namely, "tyrannical," was the most frequently attributed stereotype under the first condition but

came to have less than average frequency under the second condition. In other words, the general picture of the French became a much more favourable one under the second condition.

Negroes were described under the first condition, among other things common to both conditions, as "down-trodden, ignorant, superstitious, backward, and enslaved." Under the second condition, their picture changed to one of a "fun-loving, strong, courageous, strong-willed, and musical" people. Again, the change represents a shift from an unfavourable to a favourable picture, resulting from the manipulation of external variables represented by the two conditions under which data were collected. Similar results were obtained in the case of the Chinese. However, as Table 3 shows, the picture of the Chinese was favourable under both conditions, but became more so under the second condition.

The above results may be explained in the light of findings on assimilation and contrast effects in social judgment (7). The basic and only difference between the first and the second condition is that while in the first condition the subject is presented with the various groups making up the social-distance scale in his culture, he is presented under the second condition with only the "unfavourable end" or "low anchor" of this psychosocial scale. This actually means that, under the second condition, a restricted range of the social-distance scale was presented, in contrast to the first condition where the full range of the series of groups was involved. "Both on theoretical grounds and from empirical observations, it might be expected that the size of the stimulus range would affect the way the individual perceives a particular anchor stimulus" (7, p. 58). There is no particular anchor stimulus involved in this study. However, the two conditions differ in the size of the stimulus range, i.e., the number and kind of national groups presented under each of the two conditions. Thus it was expected that, under the second condition, where groups representing the "high anchor" or "favourable end" of the social-distance scale were excluded, there would be a change in the nature of stereotypes usually attributed to the low-ranking or rejected groups. This expectation was borne out by the results. The frequency of stereotypes attributed to most of these rejected groups became more favorable due to the exclusion of high-ranking or acceptable groups from the series of national groups presented to the subjects.

D. SUMMARY

The purpose of the present study was to investigate the effect of varied stimulus conditions on the nature of results obtained in studies of group stereotypes.

The Katz and Braly technique was used and closely followed in this investigation. The two conditions under which the technique was presented were:

1. Condition A—A sample of 50 subjects was asked to characterize 13 different national groups considered to be representative of the various possible positions or categorizations on the acceptance-rejection continuum of the prevalent social-distance scale in the culture.

2. Condition B—Another sample of 50 subjects was asked to characterize only five of the national groups which appeared under "Condition A" and which represent the "low anchor" or "unfavourable end" of the prevalent social-distance scale.

The sample used in this study consisted of two groups, each of which was composed of 50 male undergraduate Arab Moslem students at the American University of Beirut. All 100 subjects were in favour of a socialistic unified Arab World, thus constituting a highly homogeneous group.

The study demonstrated that there were some significant differences in the nature of stereotypes attributed to most of the five national groups presented under each of the two conditions. On the whole, the stereotyped picture of most of these groups changed from a predominantly unfavourable one under the first condition to a predominantly favourable one under the second, even though equated samples of subjects were used under both conditions. These results have been explained in the light of findings on anchoring effects in social judgment.

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RIVALS OF DIFFERENT RANK*

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J. W. MANN¹

A. INTRODUCTION

A special kind of cross-cultural comparison deals with coexisting cultures. When one culture is compared specially with another existing together with it in, shall we say, the same city or country, an issue that arises is how the cultures interact. The present study is concerned with this issue in one of its specific guises: that of interracial rivalry.

In its broader implications, the issue received a thorough, and pioneering, exploration from Park (8), who concentrated on the situation where "people of different racial stocks . . . live side by side in a relation of symbiosis, each playing a role in a common economy, but not interbreeding to any great extent. . ." He singled out as one of his examples "the native white and the Hindu populations in Southeast Africa," who, in fact, are the subjects of the present study.

Given the situation posed by Park, one is likely to find that the groups living together side by side are nonetheless arranged socially up and down. Indeed, there is a solid basis for asserting that in such a situation one group is quite certain to try imposing itself on the other (1). Even if there are exceptions to the general rule of attempted domination, the white-Indian relationship assuredly is not one of them, the Indians being firmly under the white thumb.

This subordination of Indians to whites should affect competitive situations where an Indian is pitted against a white. One plausible view of such an effect in its broad workings would focus on its operation as a subjective handicap. According to this view, the experience and awareness of low rank would make an Indian expect to remain subordinate when contending with a white over matters for which superordination confers a clear advantage. He would feel inferior in contests where what counts is being generally favoured by circumstances and where the acquisition of polish and background determines victory. He would feel less able to exploit opportunities than the practised white. He would look back on his past record as one of restricted

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¹ The author is grateful for help received from Dr. C. Ramfol and Mrs. H. Mann.

attainments and be reluctant to compete under prevailing conditions with the favourites of the hierarchy.

On the other hand, he would not necessarily feel entirely crushed by the hierarchical system, however much of life it presumed to control. In his basic potentialities and inherited characteristics, he might well feel able to hold his own, despite the beliefs about his innate inferiority so congenial to his superordinates. The hierarchy holds effective sway mainly in the public areas of life, so that his more personal, inner qualities might seem intact and as fine as those of any other. Indeed, since he himself does not rule and keep others in their place, he might feel that he can get on more pleasantly with people than the power-brandishing white is able to. This comes about also, perhaps, because in subordination he has had to learn to accommodate himself to others. Again, rising to the top within his own stratum of the hierarchy is as attainable as intragroup success is for a group member within any other stratum, including the white layer at the top. Racial stratification does have certain advantages for those of low rank, as Frazier (2) has indicated in discussing the "vested interests" in segregation of the American Negro. For the Indian, as for others of low rank, the racial stratification makes success in some ways easier to achieve than in an open system, because the stratification prevents direct interracial competition in many fields, leaving the individual with fewer rivals on what roads to success are open to him.

Lastly, since high power and status are denied those in the lower reaches of the hierarchy, material things may seem more accessible to the Indian's competitive strivings. Probably, also, the material things come before status and power on the ladder of needs and, being not so abundant in lower hierarchical layers as in the top layer, are competed for with especial vigour below. Something of the kind is implied by May and Doob (6) in one of the problems they pose for future research into competition. At any rate, a likely accompaniment of materialism would be a belief by the Indian that he is more down-to-earth and practical than the status-saturated white.

These speculations all assume that the Indian is neither trodden into total submission nor challengingly combative on every front. In other words, they assume that the stratification sets up neither completely impermeable barriers nor completely permeable ones. They also assume that the culture of the Indians does not unduly discourage competitiveness. There seem, in fact, to be remarkably strong pressures within the South African Indian group towards achievement (4). It is proposed to test these speculations in the city of Durban, where there are 215,000 Indians and 165,000 whites, as well as 183,000 Africans (3).

B. METHOD

1. Subjects

The Ss were 180 university students of psychology in Durban. Of these, 44 were white second-year students attached to the University of Natal. Half were male, half female. The remaining 136 Ss were Indians. A few of the Indians (six males, four females) were attending second-year psychology classes at the University of Natal; but the vast majority were studying at a completely separate institution, the University College for Indians. Most of the Ss from the University College for Indians were first-year psychology students (97 out of 126), the remainder being second-year students. There were only a few females (21 out of 97) amongst the Ss from the University College. The average age of the whites was 22 years and of the Indians 21.

2. Procedure

The investigation was conducted during class-time at the two university institutions. Mimeographed material was handed to the Ss informing them firstly that they were to be given a test. The task of each S would be to do better on the test than another student chosen to be his rival.

This information was followed by a passage containing certain sections which identified the particular kind of rival chosen for the S:

Your rival is (here was inked in "an Indian" if the S was white and "a white" if the S was Indian) student at ("University College for Indians" if the S was white, "University of Natal" if he was Indian) studying ("Psychology" inked in for all Ss). Your rival is in ("your own" inked in for all Ss) age group and is ("male" if the S was male, "female" if she was female).

Next, the S was told that before beginning the test he would have to indicate whether he expected to do better or worse than his rival on several issues, a number of which would refer to parts of the test he would soon be doing. Points would be deducted from the S's test score if he made too many wrong guesses about beating or being defeated by his rival, or if he left items unanswered.

The items that followed numbered 40 altogether and are set out in order of presentation in Table 1. The first item, for example, required the S to indicate whether he thought that he was taller than his rival or that his rival was taller than he.

After this, the S was asked, "Do you think that you would perform better against your rival if, instead of now, you competed in 5 years time? . . . in 10 years time? . . . in 20 years time?" Finally, he was told that,

provided enough students agreed, arrangements could be made to give him a different rival instead of the one already given to him. Accordingly, he was to indicate on a five-point scale how strongly he wanted to change his rival. If he did want to change, he had to write a brief description of the sort of rival he would prefer.

When the foregoing questionnaire was completed and collected, a "General Test" with a time limit of 10 minutes was administered. It contained questions about the *S*'s height and examination successes, as well as a number of problems culled from tests of general information, arithmetic, vocabulary and intelligence. The problems used were from the more difficult portions of the tests.

Last of all, when the test protocols had been collected, the *S* was given a brief questionnaire. It suggested that the maximum total score attainable on the "General Test" was 50; and required him to state the total score he expected to get himself and then the total he expected his rival to get.

C. RESULTS

The principal results are set out in Table 1. For each of the 40 contest items, Indian responses have been compared with white in a two-by-two arrangement. For example, taking the third item, 31 Indians expect their white rivals to be more friendly than they are themselves and 105 Indians do not have this expectation. In contrast, 25 whites expect to be outdone in friendliness by their Indian rivals and the remaining 19 do not. A chi square of 16.40 is yielded with a significance below the .001 level. All the other results in Table 1 have been treated similarly, the expectations that rivals will win always occupying one column of the two-by-two analysis table and the remaining expectation data the other column. The .05 level of probability is accepted as significant here and throughout this study, and two-tailed tests are invariably used.

1. *Indian Defeatism*

One type of conjecture set out above suggested that in specified contests the Indian would expect his high-ranking white rival to win. Since this is a comparative study, the interest is in whether expectations of defeat are more frequent amongst Indians than amongst whites.

a. *General fortune.* Three items in the questionnaire had been designed to bear on this issue; and on two of them appear statistically significant differences between Indians and whites in line with the speculations about the effects of subordination. Table 1 shows that expectations that the rival

TABLE 1
INDIAN AND WHITE EXPECTATIONS AS TO THE WINNERS OF INDIAN-WHITE CONTESTS

Contest to decide who is (or has)	Indians (n = 136)			Whites (n = 44)		
	Expect rivals to win	Expect them- selves to win	Do not give expecta- tions	Expect rivals to win	Expect them- selves to win	Do not give expecta- tions
taller	79	43	14	18	21	5
more honest	18	118	0	12	28	4
friendlier	31	105	0	25	17	2 ***
inclined to give up more readily	76	60	0	17	26	1
a better matriculation record	105	31	0	23	20	1 **
better able to influence others	55	80	1	19	24	1
in better health	60	76	0	4	39	1 ***
harder-working	53	82	1	37	6	1 ***
thriftier	64	72	0	36	7	1 ***
more social poise	81	55	0	10	31	3 ***
more popular amongst classmates	45	91	0	26	15	3 **
a warmer nature	17	117	2	20	22	2 ***
more widely read	97	38	1	15	28	1 ***
luckier	94	42	0	10	32	2 ***
a better memory	61	75	0	24	18	2
inclined to make better use of opportunities	38	97	1	31	12	1 ***
a better bargainer	66	69	1	38	6	0 ***
shyer	62	74	0	24	19	1
a better knowledge of etiquette	75	59	2	8	35	1 ***
nearer the top amongst own classmates						
on scores of the test to be given next	50	84	2	21	21	2
more widely travelled	104	32	0	3	41	0 ***

TABLE 1¹ (*continued*)

Contest to decide who is (or has)	Indians (n = 136)			Whites (n = 44)		
	Expect rivals to win	Expect them- selves to win	Do not give expec- tations	Expect rivals to win	Expect them- selves to win	Do not give expec- tations
born with more gifts	104	32	0	15	23	6 ***
more confident	39	97	0	19	24	1
with more advantages in life	108	28	0	2	42	0 ***
better at solving difficult problems	69	67	0	16	26	2
more self-control under stress	31	105	0	13	30	1
more realistic in everyday matters	32	104	0	18	24	2 *
more sensitive	27	108	1	24	18	2 ***
better-spoken	86	50	0	14	27	3 ***
inclined to get on better with others	29	106	1	22	19	3 ***
with higher marks in psychology examinations	57	77	2	26	16	2
physically stronger	80	55	1	11	32	1 ***
more skilled in taking advantage of others' weaknesses	99	37	0	28	13	3
more intelligent	65	71	0	22	19	3
less easily rattled	50	85	1	18	25	1
more mature in personality	48	86	2	21	20	3
more determined	14	122	0	25	18	1 ***
better-mannered	29	106	1	14	27	3
better able to fit oneself to another's mood	41	95	0	14	29	1
more tolerant	30	106	0	20	22	2 **

* Difference between Indians and whites significant at the .05 level.

** Difference between Indians and whites significant at the .01 level.

*** Difference between Indians and whites significant at the .001 level.

will be luckier and will have had more advantages in life are significantly more frequent amongst Indians than whites. There is no difference of significance between Indians and whites in expectations that the rival will be better able to influence others.

b. Social polish. All of the three relevant items show, at a high level of statistical significance, the difference implied in the Introduction above. Proportionately more Indians than whites anticipate defeat in contests to decide who is better spoken, has more social poise and has a better knowledge of etiquette.

c. Acquirements and attainments. Four of the items in Table 1 were designed to reflect this issue; and three of them bring out the predicted difference at a significant level. Indians are more likely than whites to expect inferiority in wide reading and travelling and in possessing a good record for the matriculation examination. However, the Indian group is no readier than the white to concede defeat in having higher marks in psychology examinations.

There is one other piece of evidence pertinent to the supposed looking back by the Indian on his past as one of restricted attainment. After administration of the "General Test" each *S* was required to estimate both his own score on it and the score of his rival. There is thus evidence to show whether or not a *S* estimated his rival to have fared better on the test than he did himself. In fact, the rival was estimated to have done better by 92 of the 136 Indians but by only 22 of the 44 whites ($\chi^2 = 3.73$; $p > .05$).

d. Reluctance to compete. The questionnaire item "inclined to give up more readily" does not bring out a significant difference between Indians and whites. The concluding part of the questionnaire, in which *Ss* were asked how strongly they wanted to change their rivals, also fails to distinguish Indians from whites, largely because hardly any *Ss*, white or Indian, wanted a change. Six Indians wanted "strongly" to change and one "very strongly"; one white wanted "strongly" to change and another wanted change without specifying how strongly.

However, significant differences appear in the findings about defeats expected in the distant future. These findings are set out in Table 2 and have been analyzed in the same way as those in Table 1. Indians seem no more likely than whites to think that they will beat their rivals in competition five years hence; but they are more likely to think so when the competition is set 10 years later and 20 years later.

e. Exploiting opportunities. Four of the seven items chosen to investigate this issue reveal no difference between Indians and whites. These are the

TABLE 2
FUTURE RIVALRY BETWEEN INDIANS AND WHITES

Question "Do you think that you would perform better against your rival if, instead of now, you competed . . . ?"	Answers given by					
	Indians (n = 136)			Whites (n = 44)		
	Yes	No	No reply	Yes	No	No reply
In 5 years time	97	38	1	27	15	2
In 10 years time	101	34	1	21	19	4**
In 20 years time	83	51	2	18	21	5*

* Difference between Indians and whites significant at .05 level.

** Difference between Indians and whites significant at .01 level.

"less easily rattled," "more confident," "more self-control under stress" and "more skilled in taking advantage of others' weaknesses" items presented in Table 1. The three remaining selected items yield differences that are significant but in the direction opposite from that hypothesized. Proportionately less Indians than whites expect defeats in contests to decide who is harder-working, more determined and inclined to make better use of opportunities.

2. Defeats Not Expected by Indians

In the second broad type of conjecture thrown out above it was hypothesized that in certain contests the Indian would expect to acquit himself as well as or better than his high-ranking white rival. Pertinent results are all contained in Table 1.

a. *Inner qualities.* All five of the items put in the questionnaire to cater for this issue produced results that fit the hypothesis. There are no significant differences between Indians and whites on the "more honest," "shyer" and "more mature in personality" items. That is, the Indians seem no more likely to anticipate defeat than the whites on these issues. In fact, on each issue the trend is for the Indians to be less defeatist than the whites. Analysis of the two other issues discloses that here the Indians are significantly less defeatist than the whites. A larger proportion of the whites expects to lose in competition as to who is more sensitive and more tolerant.

b. *Down-to-earth practicality.* The questionnaire gauged this quality through the "thriftier," "a better bargainer" and "more realistic in everyday matters" items. Each reveals a significantly stronger leaning towards defeat on the part of the Indians than of the whites.

c. *Social pleasantness.* Three items yield significant differences between

Indians and whites. White expectations incline more than Indian towards inferiority when there is rivalry over who is friendlier, inclined to get on better with others and has a warmer nature. Indian and white expectations do not differ when the rivalry is over who is better-mannered and better able to fit himself to another's mood.

d. Intragroup success. Compared with the whites, the Indians have a relatively smaller proportion who expect to be surpassed in a test of who is more popular amongst classmates. However, the difference between Indians and whites is not significant when the competition is over who is nearer the top amongst his own classmates on scores of the "General Test."

e. Basic potentialities and inherited characteristics. Four questionnaire items do not distinguish Indians from whites: "taller," "a better memory," "more intelligent" and "better at solving difficult problems." The remaining three items bring out significant differences but in the direction opposite from that suggested in the Introduction. Anticipatory defeatism is more widespread amongst the Indians than amongst the whites contesting who is stronger, in better health and born with more gifts.

3. Other Findings

a. Year of study. When first-year Indian Ss are compared with second-year Indian Ss, only one significant difference is found. Performing better against the rival in 10 years time is expected by 78 of the 97 first-years but by only 23 of the 39 second-years ($\chi^2 = 5.61$; $p < .05$). Since this was the only significant difference in 44 comparisons, it is not strictly acceptable (11).

b. Sex. When white males are compared with white females, seven significant differences emerge. Only three of the differences are on items on which Indians and whites were found to differ. That the Indian rival will be inclined to make better use of opportunities is anticipated by 19 of the 22 females but by only 12 of the 22 males ($\chi^2 = 3.93$; $p < .05$). The prospect of future competition also makes the females more defeatist. Victory in a contest 10 years ahead is expected by 16 of the 22 males but by only five of the 22 females ($\chi^2 = 9.11$; $p < .01$). In a contest 20 years ahead, victory is expected by 15 of the males but by only three of the females ($\chi^2 = 11.38$; $p < .001$).

The other sex differences, which are all significant at the $< .05 > .01$ level, reveal that the white females incline more than the males towards expecting to be bettered by Indian rivals in tests of intelligence, being able to influence others and being near the top amongst classmates on the "General Test."

c. *Individual analysis.* Every *S* studied expected to beat his rival on at least some issues.

D. DISCUSSION OF RESULTS

On the whole, the speculations ventured in the Introduction were supported. Most of the items designed to reflect the three broad factors of General Fortune, Social Polish and Acquirements and Attainments brought out the predicted differences between Indians and whites. Another broad factor, Reluctance to Compete, was tested five times, bringing out the predicted difference twice at a significant level and once at a near-significant level. Again, all the items reflecting Inner Qualities, Social Pleasantness, Down-to-earth Practicality and Intragroup Success failed, as predicted, to reveal marked Indian admissions of inferiority.

However, despite the general success of the speculations, they encountered contradiction when two broad factors were investigated. Instead of there being evidence that whites exploit opportunities more than Indians, the only differences between Indians and whites on this score showed that superiority in determination, hard work and making use of opportunities was expected more by the Indians. On the other hand, where Indians were hypothesized not to lean more towards inferiority, they in fact did so. This was when basic potentialities and inherited characteristics were at issue. Here, some of the predictions were confirmed; but, contrary to conjecture, the Indians conceded better health, strength and innate endowment to the whites. The failure of prediction in these two instances suggests that the Indians have been conceived of as too cowed on the one hand and as not meek enough on the other. Rank in the hierarchy may still be dictating the difference between races; but seemingly the Indians regard themselves as more handicapped in basic endowment than anticipated while at the same time regarding themselves as striving harder and more effectively than anticipated to overcome their disadvantages.

It is quite reasonable, of course, for the Indians to believe that their low rank in the hierarchy, with its implications of relative poverty, puts them at a disadvantage in matters of health and strength. What is more difficult to understand is their apparent belief that whites are "born with more gifts" than they are themselves. The phrase was intended to convey an inherited superiority; but probably the item was actually taken by many to imply "being born with a silver spoon in one's mouth" rather than "being born with better genes." In fact, information collected after the present

study was completed strongly suggests that this is what happened.² Assuming that the unintended construction was put upon the item, the item itself must be out of place in the Basic Potentialities and Inherited Characteristics category and should be transferred to the General Fortune category, where it neatly fits in with the hypothesis that Indians feel less smiled on than whites by fortune and circumstances.

The findings to do with the Reluctance to Compete category are less straightforward than the other results because they draw largely on questions of a different kind. Three of these questions invited *Ss* to state whether they thought they could perform better against their rivals in the future. In asking these questions, it was assumed that a *S* who feared failure under prevailing conditions might yet expect to fare better in the future when circumstances may have changed to his advantage. In other words, the *S* would fix his hopes of success more in the future than in the present. Indeed, it transpired that although Indians were no more likely to anticipate success than whites in contests held in the near future—five years ahead—they were more likely than whites to expect success when the contests were postponed for 10 years or 20 years. Evidently, what intimations Indians give of failure must not be taken as depicting a hopeless and irremediable state.

Another kind of question dealing with reluctance to compete invited the *S* to express a preference for another rival, if he so wished. It was assumed that an Indian would feel handicapped in competing against a white and so would be particularly willing to change his rival. However, since nearly all the *Ss*, Indian and white, were content with their assigned rivals, the assumption proved a poor one.

The Acquisitions and Attainments category included the one remaining extraordinary kind of question. A *S* was required to estimate his own and his rival's score on the "General Test" immediately after completing the test. If the conjectures in the Introduction are sound, the handicapped Indians should have regarded their attainment in the immediate past as inferior to that of the whites. Some *Ss*, by setting their own scores lower than their rivals', did indeed look upon their attainment as inferior; but there was

² Within a fortnight after the Procedure of the present study was applied to first- and second-year groups of Indians studying at the University College for Indians, Dr. C. Ramfol investigated the same groups. He used the same Procedure once again, except that this time each Indian was pitted against an African rival. Immediately after completing all the steps in the Procedure, he required each *S* to write down what he understood "born with more gifts" to mean. It was understood to imply being born into more fortunate surroundings, like a wealthy home, by 59 per cent of the *Ss*; and to imply being born with more inherited ability by 38 per cent of the *Ss*. The remaining three per cent of the *Ss* gave unclassifiable responses.

only a near-significant tendency for such *Ss* to occupy a larger part of the Indian group than of the white. Earlier work has suggested that estimates of past performance resemble estimates of future performance and therefore should also be treated as aspirational (5). If the suggestion is accepted, research about the effect of superordination on aspirations is relevant here. It has been shown, for example, that certain estimates by American Negroes are lowered much more if the Negroes believe they are being compared with whites than if they believe the comparison is with their congeners. It is assumed that feelings of inferiority are at work in this situation (9). Unfortunately, in the present study the hierarchical inferiority of the Indians did not manifest itself in the estimates as strongly as theory and the precedent of earlier research suggested; but there was undoubtedly a leaning in the predicted direction.

Amongst the ordinary questionnaire items, there are one or two that at first sight might seem to yield anomalies. Expressions of inferiority were rife amongst Indians when the results of the matriculation examination were involved but no more marked than amongst whites when the examination concerned was in psychology. Perhaps the explanation for this is tied up with the fact that many of the *Ss* were first-year students just embarking on the study of psychology at the start of the academic year, whereas all *Ss* had already matriculated. A psychology examination might have been too much of an unknown ordeal for Indian *Ss* to be greatly influenced by their hierarchical disadvantages and sufficiently far in the future for them to resist yielding to pessimism. Another item did not produce the same results as an item resembling it; but this time the apparent anomaly was designed. The "better-mannered" item was not categorized as one of the Social Polish items, which it superficially resembles, because it was thought that it strongly reflected a quality of interpersonal congeniality opposed to rough and inconsiderate dealings with others, whereas the three Social Polish items reflected rather a familiarity with the social forms. In fact, the "better-mannered" item did not distinguish Indians from whites, quite in accordance with its placing in the category of Social Pleasantness, whereas the other three items yielded the predicted signs of Indian inferiority. This item is probably the most dubiously categorized; if there are others that provoke doubt they probably also do so because they could fit in more categories than one, although this would not necessarily involve categories predicted to yield opposite results.

In subjecting conjectures about the effects of subordination to test, Indian expectations were always compared with white expectations. The reasoning implicit in making the comparison was that even if the vast majority of

Indians showed defeatism this could not be attributed to the effects of subordination if at the same time the vast majority of superordinate whites also showed defeatism. A relatively greater proportion of defeatists in the lower-ranking group would thus have to be demonstrated for the conjectures to be confirmed. However, this relative treatment of findings should not thrust aside evidence of an absolute kind. If absolute tendencies in the Indian or the white group are considered, certain significant points emerge. Basically there are two kinds of Indian-white comparison that could yield a significant difference. In one kind, most Indians incline one way and most whites the other. In another kind, both Indians and whites incline the same way but one more strongly than the other. The situation is complicated because when Indians and whites incline in different directions they are actually agreeing about the kind of rival who will win; and when they incline in the same direction they are disagreeing. Thus, if most of the Indians expect their rivals (who are white) to win, and most whites lean the other way and do not expect their rivals (who are Indian) to win, majorities of both Indians and whites are expecting white victory.

Scrutiny of the significant results in Table 1 shows that both Indians and whites concur in expecting the victor to be white when there is rivalry over who is: stronger, better spoken, has more social poise and knowledge of etiquette, is more widely read and travelled, has more advantages in life, is luckier and is born with more gifts. That is to say, on each issue more than half the Indians expect their white rivals* to win at the same time as more than half the whites expect to win themselves. Apparently, the two racial groups here share the same stereotypes about the superiority of the whites. All or most of the stereotypes reflect the direct advantages conferred by superordination.

Similarly, the two races share a number of stereotypes about Indian qualities. Majorities of both whites and Indians see the Indian as ahead in: friendliness, popularity, hard work, thrift, making use of opportunities, determination and sensitivity. To this might be added the quality of getting on with people, which exactly half of the whites concede to their rivals and most Indians claim for themselves. Excepting one item, a stereotyped picture is conjured up of the Indian as self-improving and companionable (or thrifty and ingratiating: interracial agreement on the picture is made easier by the varying degrees of favourableness with which any single quality may be regarded). If this picture is accepted, the "more popular amongst classmates" item belongs better to the category of Social Pleasantness than to the Intragroup Success category in which it was placed. The exceptional

"more sensitive" item may relate to a common recognition of the effects of subordination: the Indians feeling the hurts and indignities of their low rank, the whites noting with surprise, guilt or contempt the Indian's susceptibility to injury.

Generally, the items delineating self-improvement or thrustfulness in the stereotyped portrait of the Indian (hard work, thrift, determination, making use of opportunities) fit in with stereotypes gathered from Durban students by van den Berghe three years before the present study was carried out (10). Both Indians and whites were found by van den Berghe to have a stereotyped picture of the Indian as hard-working and good in business. The portrait of the white, however, was not recognizably like the one emerging from the present study.

Although whites and Indians generally agree on how to portray a white or an Indian, there are a few clashes. These take place when a majority of each race expects its own representative to be the victor. When the rivalry is over matriculation results, warmth and realism, most of the Indians expect an Indian to come out on top and most of the whites expect a white to be first. Another contest, the only remaining with a significant outcome, shows that the competitor standing higher in tolerance is expected by most of the Indians to be Indian but to be white by exactly half the whites. Altogether, these clashes do not have much in common but apparently occur in unconnected areas of potential misunderstanding.

The results discussed so far all involve expectations or attitudes. Moreover, except for a few, these attitudes or expectations are about situations to occur in the immediate future. In thus arranging the study it was hoped to extract responses from the *Ss* that would be on a higher level of genuineness than the commonly-elicited type of attitude which has no prospect of encountering reality soon after expression. Of course, for a *S* to accept that his expectations of beating or succumbing to his rival would shortly be brought up against reality, he would have to acknowledge that the items listed here in Table 1 referred to measurable qualities. Probably these items would seem testable to the psychology students used as *Ss*, particularly to those who had already had some instruction in personality assessment.

Provided they believed what they were told, the *Ss* would be comparing themselves with rivals similar to themselves in age, sex and education but different in race and place of study. Since the University College for Indians is exclusively for Indians and the University of Natal is no longer allowed to take nonwhite students (except for a handful previously admitted and still completing their studies), the information about place of study added little

if anything beyond an air of authenticity. In consequence, the salient and distinctive feature of each rival would be that rival's race; and presumably the attitudes and expectations would be based on assumptions or guesses about race differences.

On the whole, the comparison of Indian and white attitudes brought out many significant differences (23 in 45 comparisons). All these differences have been attributed to the effect of the hierarchical system; but of course other factors may be playing a part. Two factors that were not controlled in the investigation were year of study and sex. The Indian group had a smaller proportion of females and second-year students than the white group. It thus becomes possible for a sex difference or a year-of-study difference to disguise itself as a race difference. A case in point involves white females, who are more defeatist than white males when it comes to making good use of opportunities and beating the rival in ten and twenty years time. As a whole, whites turn out to be more defeatist than Indians on these issues. It could therefore be argued that the greater defeatism of the whites is due really to their greater proportion of defeatist females. Hence, if the Indian group had the same proportion of females (and if Indian females were like white females in being more defeatist than the males) the apparent race difference would disappear. The defeatism of the whites about beating Indians in ten years time is doubly shadowed by doubt if strict statistical criteria are abandoned and it is accepted that the second-year Indians are more defeatist than first-year Indians. It could then be argued as before that if Indian and white groups were more alike in composition the apparent race difference would vanish.

At most, however, such qualifications affect only a small fraction of the race differences suggested by this study; and they leave all broad trends undisturbed except the Reluctance to Compete factor, where the only distinction between Indian and white expectations now seems explicable in terms of sex.

E. CONCLUSIONS

The South African Indian and white cultural groups differ in rank; and it was suggested that this difference in rank would affect Indian-white rivalry. Of course, rivalry itself is merely one correlate of rank: the aim and outcome of competition is very often the subordination of one rival to another. Intimately connected as they thus are, rivalry and rank were predicted to work together towards certain differences, largely of expectation, between Indians and whites. The predictions assumed that the undoubted subordination of

Indians to whites was not so crushing as to make Indian competitiveness unrealistic and almost impossible to arouse, as it might be in a thoroughly caste-like situation (7). The first conclusion to be drawn from the results is that this assumption is sound, for the Indians do not shrink from contending with the whites and, what is more, always expect to beat them on some issues.

The whole basis of the predictions was that the whites would not expect to conquer all the way, nor would they be expected to. True, subordination was supposed to make Indians aware of the handicaps accompanying their rank, so that they would freely accept defeat as their portion in certain contests. As predicted, the Indians did in fact see themselves as behind in general fortune, behind in acquirements and attainments and behind in social polish. Their backwardness in these things is directly dictated by the hierarchy and it is not surprising that they should recognize it. Nevertheless, there are places where low rank is less important or at least not so discouraging. Here, the Indians were predicted to have prospects subjectively as good as or better than those of the whites. Here, in fact, they did not yield to defeatism. Their inner qualities, their practicality, social pleasantness and successes within their own group were all grounds for holding their heads high. This is understandable, because some of these areas are sheltered from the direct effects of domination; and others sustain qualities that domination encourages or does not deem challenging enough to forbid.

Most of the relative defeatism of the Indians was thus correctly predicted. There were two clear failures of prediction. One prediction suggested that Indians would be backward in exploiting opportunities and did not anticipate their marked push towards self-improvement. This push seems part of the practical, business-like quality already noticed in the Indians. The other prediction was partly contradicted when Indians disclosed inferiority feelings about some basic potentialities like health and strength. Apparently, these qualities are not so sheltered from the effects of low rank as supposed, although other basic potentialities like memory and intelligence seem to be. Together, the failures of prediction show that, while it is safe to predict that the low rank of the Indians will not lead to total defeatism, there is some difficulty in predicting just where the defeatism will appear.

Analysis of the findings brought out a consensus spreading over both whites and Indians about which race would most probably triumph when Indians and whites contended. The defeatism of one race is thus complemented by the sanguine outlook of the other. Probably the Indians and whites themselves are using the facts of rank to predict these victories and defeats.

That Indians and whites agree so often on the outcome of competitions is a pointer to what will happen when representatives of the races actually compete. The contest itself will be determined by the expectations brought to it. Resignation, overconfidence, enthusiasm, reluctance and other powerful individual forces at work in the contest and compelling its resolution all feed upon such expectations. The thesis of this study is that the expectations in turn are nourished by rank within the social hierarchy.

F. SUMMARY

The Ss of this study were 180 Indian and white students in South Africa. Each *S* was assigned a rival of different race from his own. Before writing a competitive test, he had to indicate whether he expected to perform better or worse than his rival on a number of issues. It was conjectured that the low social rank of the Indians would make them defeatist on issues involving acquirements and attainments, social polish and general fortune; but that they would expect to do as well as or better than their white rivals on issues concerning inner qualities, practicality, social pleasantness and intragroup success. These conjectures were confirmed; a few others were contradicted or not firmly established.

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AN EXPERIMENTAL STUDY OF THE OPERATION OF PRESTIGE SUGGESTION IN EXTRAVERTS AND INTROVERTS*

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A. INTRODUCTION

Prestige suggestion has become today an important technique for bringing about change in the opinions and attitudes of people. Advertisement and propaganda become more effective when labelled with prestige figure. Doob (4) has clearly indicated the significance of prestige suggestion in propaganda. Le Bon (6) noted the importance of prestige suggestion in the behavior of the crowd. It has no less a significant role in the clinical field. The therapist because of his prestige and authority is in a position to exert unusual influence on the attitude of the client. Some persons, of course, are more liable to the influence of suggestion than others. Roach (8) noted that extravert women showed a marked tendency to be more suggestible than introvert women. There was no obvious difference for extravert and introvert men. Dahms and Jenness (2) found that a pronounced negative relationship seemed to exist between introversion and suggestibility in men. A few other studies of about the same nature are those of Bartlett (1), Guilford and Braly (5), Davis and Husband (3). But one is not infrequently struck by the absence of a significant study of prestige suggestion in extraverts and introverts.

B. PURPOSE

The purpose of the present study was to determine whether or not there is any difference in the influence of prestige suggestion on extraverts as compared to introverts.

C. METHOD

1. Subjects

Three hundred male students of Patna University were given a new diagnostic test for introversion-extroversion developed by Neymann and Kohlstedt

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(7). Their scores on the test ranged from plus 22 to minus 20. Finally, two groups of subjects were formed on the basis of their scores on this test. The first group was designated the extravert group, which consisted of 40 such students who had obtained scores ranging from plus 16 to 22. The second group consisted of 40 such students who had obtained scores ranging from minus 13 to minus 20. This group was designated the introvert group.

2. Material

The materials were three lists: List A, List B and List C.

List A consisted of 12 slogans of national significance.

List B consisted of the names of 12 Indian leaders of repute arranged in alphabetical order. These leaders belonged to different political parties.

List C consisted of the same 12 slogans of List A paired with the names of 12 leaders of List B in the manner indicated in the description of Session III.

3. Experimental Procedure

The experiment was conducted in three sessions with an interval of one week between any two consecutive sessions.

a. *Session I.* In this session, the subjects of the two groups were asked to rank the 12 slogans of List A for their national significance. They were given the following instructions:

Listed below are 12 slogans. Please rank them in order of merit for their national significance. Place the number 1 beside the slogan you consider to be of the utmost national significance, 2 alongside the next in order, 3 next, and so on to the slogan you consider least significant, which should receive the rank of 12.

b. *Session II.* In this session, the subjects of the two groups were asked to rank the twelve Indian leaders of List B in order of the degree of prestige value each had for them. They were given the following instructions:

Listed below are names of 12 leaders of repute arranged in alphabetical order. Please rank them in order of prestige value each has for you. Place the number 1 beside the name of the leader having the highest prestige value for you, 2 alongside the next in order, 3 next, and so on to the leader having the least prestige value, who should receive the rank of 12.

c. *Session III.* In this session, each slogan used in Session I was paired with the name of a leader in Session II and each subject of the two groups was asked to rank the 12 slogans in order of merit for their national significance. The pairing was done in a reversed order for each subject so that

the slogan ranked 1 by a subject was linked up with the leader ranked 12 by him, the slogan ranked 2 was linked up with the leader ranked 11 and so on. As different subjects of the two groups differed in their rankings of both slogans and leaders, this sort of separate pairing for each subject was done. They were given the following instructions:

Listed below are 12 slogans with names of their authors written against each. Please rank the slogans in order of merit for their national significance. Place the number 1 beside the slogan you consider to be of the utmost national significance, 2 alongside the next in order, 3 next, and so on to the slogan you consider least significant, which should receive the rank of 12.

D. RESULTS AND DISCUSSION

Table 1 presents the rank order correlation coefficients (*rhos*) computed between rankings of slogans in Sessions I and III for each subject of the two groups. It may, however, be remembered that the higher the positive correlations, the greater the similarity between the two sets of rankings. Thus, a significant positive correlation would mean little or no influence of prestige suggestion and a negative or an insignificant positive correlation would indicate definite influence of prestige suggestion.

From Table 1, it will be evident that in respect of the extravert group 10 out of 40 *rhos* are positive and significant (two at .01 level of confidence and eight at .05 level). The remaining 30 *rhos* are either negative or positive but not significant even at .05 level of confidence. This shows that significant shifts occurred in the rankings of 30 out of 40 subjects belonging to the extravert group. In other words, it can be said that prestige definitely influenced the judgments of these 30 extraverts in Session III. So far as the introvert group is concerned, 24 out of 40 *rhos* are positive and significant (18 at .01 level of confidence and 6 at .05 level). The remaining 16 *rhos* are either negative or positive but not significant at .01 level of confidence. This clearly indicates that prestige influenced the judgments of only 16 out of 40 subjects in the introvert group.

In order to determine whether or not there was a significant difference in the influence of prestige suggestion on extraverts as compared to introverts, chi square was computed according as indicated in Table 2.

From Table 2, it will be clear that the magnitude of the chi square obtained is 10.02 which is significant at .01 level of confidence. Obviously, the two groups differ significantly in respect to their susceptibility to prestige suggestion. In other words, the extraverts are more liable to influence of prestige as compared to the introverts.

TABLE 1
RANK ORDER CORRELATION COEFFICIENTS (RHOS) BETWEEN SESSIONS I AND III
FOR SUBJECTS IN BOTH EXTRAVERT AND INTROVERT GROUPS

Sl. No. of Ss	Extraverts		Sl. No. of Ss	Introverts	
	Rho	Significance level		Rho	Significance level
1.	.210	—	1.	-.230	—
2.	.154	—	2.	.966	.01
3.	-.272	—	3.	-.384	—
4.	.581	.05	4.	.944	.01
5.	.231	—	5.	.658	.05
6.	.441	—	6.	.812	.01
7.	.210	—	7.	.518	—
8.	.334	—	8.	.245	—
9.	.042	—	9.	.868	.01
10.	.182	—	10.	.868	.01
11.	-.034	—	11.	.861	—
12.	.063	—	12.	.091	—
13.	-.181	—	13.	.861	.01
14.	.105	—	14.	.840	.01
15.	.903	.01	15.	.637	.05
16.	.581	.05	16.	.602	.05
17.	.686	.05	17.	.210	—
18.	.231	—	18.	.665	.05
19.	-.517	—	19.	.420	—
20.	.595	.05	20.	.301	—
21.	.588	.05	21.	.770	.01
22.	.189	—	22.	.301	—
23.	.427	—	23.	.791	.01
24.	.329	—	24.	.755	.01
25.	.181	—	25.	.965	.01
26.	.350	—	26.	.937	.01
27.	.231	—	27.	.665	.05
28.	.161	—	28.	.350	—
29.	.588	.05	29.	.273	—
30.	.441	—	30.	.958	.01
31.	.077	—	31.	.308	—
32.	.721	.05	32.	.777	.01
33.	.602	.05	33.	.399	—
34.	.301	—	34.	.427	—
35.	.371	—	35.	.735	.05
36.	-.216	—	36.	-.454	—
37.	.763	.01	37.	.833	.01
38.	.406	—	38.	.455	—
39.	-.202	—	39.	.826	.01
40.	-.279	—	40.	.854	.01

The data for the subjects in the two groups were further analyzed on the basis of each group taken as a whole. Mean rankings of slogans for each group were calculated for Session I. These mean rankings were then placed in simple rank order. Similarly, mean rankings of slogans for each group were calculated for Session III and these were also placed in simple rank order. The rank order correlation coefficient was then calculated between the two for each group. Table 3 summarizes the results obtained.

TABLE 2
SIGNIFICANCE OF DIFFERENCE IN THE INFLUENCE OF PRESTIGE SUGGESTION
ON EXTRAVERT AND INTROVERT GROUPS

Groups	Frequency of positive and significant rhos	Frequency of negative and positive but insignificant rhos	Chi-square value
Extravert	10	30	10.02*
Introvert	24	16	

* Significant at .01 level of confidence.

TABLE 3
RANK ORDER CORRELATION COEFFICIENTS BETWEEN THE RANKINGS UNDER SESSIONS I
AND III FOR EXTRAVERT AND INTROVERT GROUPS

Groups	Rhos	Significance level
Extravert	.420	—
Introvert	.806	.01

Table 3 shows that the rank order coefficient of correlation for the extravert group is not significant even at .05 level of confidence. This means that a significant shift occurred in the ranking of this group under the influence of prestige suggestion in Session III. The rho for the introvert group, however, is significant beyond .01 level of confidence. Obviously, the rankings of slogans by this group under Sessions I and III remained substantially unchanged. The extraverts are, therefore, more liable to change their judgments under the influence of prestige as compared to the introverts.

E. SUMMARY

The present study was undertaken to investigate whether or not there is any difference in the influence of prestige suggestion on extraverts as compared to introverts. Two groups of subjects (one extravert and another introvert) were formed on the basis of the scores of 300 male students on a new diagnostic test for introversion-extroversion developed by Neymann and Kohlstedt. The extravert group consisted of 40 such students as had obtained scores ranging from plus 16 to plus 22. The introvert group consisted of 40 such students as had obtained scores ranging from minus 13 to minus 20. The subjects of the two groups were asked to rank slogans of national significance both without and with the label of prestige attached to them. The analysis of the data revealed that the extraverts in general were more liable to change their judgments under the influence of prestige as compared to the introverts.

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CULTURAL AND SOCIAL CORRELATES OF TEACHERS' ATTITUDES TOWARD THEIR SCHOOL*

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A. INTRODUCTION

Guam is a U.S. territory located in the western Pacific some 800 miles north of the equator and 1400 miles east of the Philippines. The public school system is headed by the governor, a director of education, and a superintendent of schools. During the fall of 1961, the Guam legislature undertook an investigation of the schools; in the course of the subsequent hearings, a number of highly critical remarks were made by various school personnel. The director asked that an impartial survey determine the real feelings of the teachers toward their school system. The data reported herewith came from that survey.

Guam's teachers come from three different groups. There are the local Guamanian teachers, the Contract teachers from the U.S. mainland employed on a two-year contract basis, and the Dependent teachers. These latter are the wives and/or daughters of military and civilian personnel; almost all are from the U.S. mainland. Quite obviously, these three groups have different backgrounds and interests. The Guamanian has been exposed to a culture which includes components of Chamorro, Filipino, Micronesian, Japanese, Spanish, and American cultures. The Contract teacher is a professional educator, possessing at least the Bachelor's degree from an accredited college; he is also an American citizen. The Dependent teacher may be like the Contract teacher, but more often than not, this teacher is a part-time worker whose primary concern is homemaking. These latter are employable with a minimum of two years of college preparation and even less whenever the demand exceeds the supply. Both the Guamanian and the Dependent teacher are eligible for tenure upon completing six months of teaching; this benefit is not extended to the Contract teacher.

These three groups of teachers, Guamanian, Contract, and Dependent come from different cultural and social backgrounds. To what extent, if any, were their attitudes comparable toward Guam's schools? To what ex-

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tent did they differ? To answer these questions, the filled-in questionnaires were coded on IBM cards and the answers analyzed according to the three groups. The statistical significance was determined by computing chi square for the various ensuing tables. Certain of these questions and tables appear below. The final returns included 224 Guamanian teachers, 123 Contract teachers, and 118 Dependent teachers; this represents 88 per cent of Guam's teachers. Not all teachers answered each item; consequently, the total for each item varied, but within small limits.

B. RESULTS

The first five questions were identifying items, i.e., "In what grade level do you teach?", "How long have you taught?", "How much college work do you have?", "In what area do you do most of your teaching?", and, "What is the nature of your employment?"

Question 6 asked, "How do you feel about the amount of supervision and visitation given to you by the Director of Education?" The three groups held quite similar attitudes on this issue as revealed in Table 1. The chi

TABLE 1
HOW DO YOU FEEL ABOUT THE AMOUNT OF SUPERVISION AND VISITATION
GIVEN TO YOU BY THE DIRECTOR OF EDUCATION?

Response	Contract	Class of Teacher Guamanian	Dependent
It's about right	44	88	45
He gives too little supervision	33	47	21
I don't know	31	73	41

Note: Chi square = 4.4; not sig.

square of 4.4 with 4 degrees of freedom lacks significance. Question 7 was similar, referring to the superintendent of schools. The chi square also lacked significance. So, the three groups held comparable views toward supervision provided by the Director and the Superintendent.

Question 8 was in the same vein, but it applied to the local school: "How do you feel about the help you get from the administrative staff of your own school?" As disclosed in Table 2, the three groups differed; a significant minority of both Contract and Dependent teachers felt that the supervision was "too little." The chi square of 9.7 is significant at the 5 per cent level. In comparison, the Guamanian teachers were relatively satisfied with this area.

This trend was carried out even more in the responses to a question ask-

TABLE 2
HOW DO YOU FEEL ABOUT THE HELP YOU GET FROM THE ADMINISTRATIVE STAFF
OF YOUR SCHOOL?

Response	Contract	Class of Teacher Guamanian	Dependent
It's about right	95	188	88
I get too little help	21	17	16
I don't know	4	6	7

Note: Chi square = 9.7; sig. @ 5%.

ing the teachers to reveal their feelings as to whether or not their principals devoted sufficient time to classroom visitation. Table 3 shows that both Contract and Dependent teachers possessed significant minorities who believed that more visits were needed; this attitude was not expressed to the

TABLE 3
AT THE END OF THE YEAR, THE PRINCIPAL EVALUATES ALL OF HIS TEACHERS;
HOW DO YOU FEEL ABOUT HIS CLASSROOM VISITS FOR THIS PURPOSE?

Response	Contract	Class of Teacher Guamanian	Dependent
The number of visits is satisfactory	74	194	85
He does not visit often enough	39	8	26
He comes too often	0	14	0

Note: Chi square = 66.6; sig. @ 1%.

same degree by the Guamanian teachers. Table 3's chi square of 66 was significant at 1 per cent, showing that a real difference existed between the three groups.

All groups would appreciate more help from specialists, but this tendency was most pronounced among the Dependent teachers, and least with the Guamanian teachers. The data appear in Table 4. The relatively large numbers in all three groups saying, "I don't know" suggests that the role of the

TABLE 4
HOW DO YOU FEEL ABOUT THE HELP AVAILABLE FROM SPECIALISTS
(READING, SPEECH, ETC.)?

Response	Contract	Class of Teacher Guamanian	Dependent
The amount of help I get is about right	38	85	24
I get too little help	43	75	57
I don't know	33	48	27

Note: Chi square = 12.2; sig. @ 1%.

specialist is ambiguous in the minds of these respondents. That is, the teachers do not seem to realize how or if specialists should supervise.

Three questions were addressed to the matter of sufficiency of school supplies, reference books, and equipment. The three groups showed different attitudes toward these items. Both the Contract teachers and the Dependent

TABLE 5
HOW DO YOU FEEL ABOUT THE AMOUNT OF EQUIPMENT THAT IS AVAILABLE
(SCIENCE EQUIPMENT, AUDIO-VISUAL AIDS, ETC.)?

Response*	Contract	Class of Teacher Guamanian	Dependent
The amount is about right	41	116	53
There is too little equipment available	76	88	57

Note: Chi square = 14.2; sig. @ 1%.

* The category, "I don't know," was so infrequently chosen that it was discarded in this analysis.

teachers felt that more supplies were needed; this feeling was reflected by only a minority of the Guamanian teachers. Table 5 shows how the three groups felt about equipment; the findings for the other two areas were almost identical.

In response to the question, "What is a reasonable class size for the grade and level you teach?", Guamanian teachers tended to favor from 23 to 27 pupils. Although there was some concurrence on the part of the Contract and Dependent teachers, they included sizable minorities recommending smaller classes of less than 23, or else larger classes of greater than 28. However, attitudes toward *actual* class size were different, as revealed in Table

TABLE 6
HOW DO YOU FEEL ABOUT YOUR PRESENT AVERAGE CLASS SIZE?

Response*	Contract	Class of Teacher Guamanian	Dependent
My average class size is too big	74	85	69
My average class size is about right	44	136	48

Note: Chi square = 23.2; sig. @ 1%.

* The category, "My average class size is too small," was discarded because of very low frequencies.

6. The table shows the Guamanian teachers were relatively satisfied with their present class sizes, but majorities of teachers in the other two groups felt their classes were too big. An interesting sidelight on this issue was revealed when the actual school enrollments were consulted. These data showed

that the typical class size for Guamanian teachers was between 30 and 33. These same teachers recommended a smaller class, but, as presented in Table 6, were satisfied with the actual class size assigned. This discrepancy is not readily explained.

Two items solicited feelings toward the teacher's own salary and toward pay raises accompanying promotion or advanced education. Although all three groups felt that their salary was too small, this idea was held by a large majority of the Dependent teachers, followed by the Contract teach-

TABLE 7
HOW DO YOU FEEL ABOUT YOUR SALARY?

Response	Contract	Class of Teacher Guamanian	Dependent
It is too large	0	0	0
It is about right	36	61	15
It is too small	82	137	95
I don't know	3	21	7

Note: Chi square = 19; sig. @ 1%.

ers, with the Guamanian teachers in third place. These data are revealed in Table 7. The table shows that the Dependent teachers voted 6 to 1^o that their pay was low; whereas the other two groups voted approximately 2 to 1 on this issue.

In view of some of the previous data, it came as something of a surprise to find that all three groups entertained similar and positive attitudes toward their actual teaching. The data presented in Table 8 show that large majori-

TABLE 8
HOW DO YOU FEEL ABOUT YOUR WORK AS A TEACHER IN THE CLASSROOM
AND THE CONDITIONS UNDER WHICH YOU WORK IN YOUR SCHOOL?

Response	Contract	Class of Teacher Guamanian	Dependent
I thoroughly enjoy my work	23	49	21
I am satisfied, even though there are problems	81	154	68
I don't know. Things are difficult	11	13	21
I just don't like it	5	5	3

Note: Chi square lacks significance @ 5%.

ties in all three groups were favorably disposed toward their work in the classroom. This climate did not extend to the final question which was concerned with the relative gains made in the development of Guam's schools.

Table 9 shows that the Guamanian teachers were more optimistic than were their mainland colleagues. When the favorable responses are compared with the unfavorable responses in Table 9, we note that the Guamanians gave

TABLE 9
IN REFERENCE TO THE OVERALL EDUCATION GIVEN TO OUR BOYS AND GIRLS,
WHAT IS YOUR FEELING ABOUT THE DEVELOPMENT
OF OUR PUBLIC SCHOOL PROGRAM?

Response	Contract	Class of Teacher Guamanian	Dependent
There has been great improvement	5	29	6
There has been reasonable improvement	56	142	48
There has been little, if any, improvement	21	28	16
It has gone backward	9	4	4
I don't know	27	18	42

Note: Chi square = 58; sig. @ 1%.

six favorable responses to each unfavorable; the mainland teachers voted 5 to 2½, showing a less favorable attitude.

C. DISCUSSION OF RESULTS

The three groups of teachers surveyed in this study tended to answer the questionnaire differently. In general, the Contract teachers and the Dependent teachers were more apt to find fault with the system, while the Guamanian teachers were more optimistic, and much less critical. These differences are probably related to a number of factors. Very few of the Guamanian teachers have seen schools other than those of Guam. Consequently, they are less able to make comparisons. In addition, their educational level is lower than the mainland teacher. Presumably, this would affect one's ability to respond to questions on supplies and equipment. A partial check was possible on this: 14 Guamanian teachers had completed Bachelor's degrees; their responses were analyzed separately. Contrary to their fellows, this group was highly critical of salary and pay for advancement. They also were less inclined to find improvement in the school system (see Table 9). Unfortunately, the number of these teachers was too small to permit generalization.

These data suggest that those who occupy positions of leadership involving personnel of disparate cultures or social level need to be aware that their policies may not be received with equal degrees of enthusiasm. Further, the need to conduct systematic surveys becomes increasingly important. It is

apparent from these findings why such issues as teachers' salaries have met with a mixed reception on the part of Guam's teachers. It seems to be a safe generalization that similar results would be found in groups such as may be found in New Mexico, where persons of an Anglo background work side by side with those of Spanish or Indian background. Or in California, or Hawaii, etc.

The notion that education makes one more critical deserves further investigation. Much of U.S. foreign policy is aimed at increasing the sum of knowledge possessed by persons in the under-developed areas (Peace Corps, exchange student programs, etc.). Experts in human relations may help the recipients of such knowledge to adjust to their home lands; equal help might be desirable for those who will have to work with the trained persons when they return to their homes.

In general, this study points up the existence of a problem that has been recognized by social psychologists: people who work with other people need to develop effective communications systems that permit the ready flow of information back and forth. Where groups of people entertain sharply contrasting attitudes toward common problems and concerns, the task is likely to be even more complicated, thus deserving extra attention and consideration. Failure to take such issues into account is likely to produce (or permit to develop) less effective media for working together, and for solving problems of mutual concern.

D. SUMMARY AND CONCLUSIONS

The teachers of the U.S. territory of Guam comprise three groups: Guamanian, Contract, and Dependent teachers. Some 88 per cent of these teachers responded to a questionnaire designed to elicit their attitudes toward Guam's schools. It was found that these three groups often held disparate views toward these schools; the Contract and Dependent teacher tended to be much more critical than were the Guamanian teachers. A few data suggested that these differences in attitudes were partially related to educational background; the more highly educated, the more the criticism. The implications for those who work with personnel from different cultural or social levels was discussed.

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RELATIONSHIPS BETWEEN AUTHORITARIAN ATTITUDES OF COLLEGE STUDENTS, ESTIMATION OF PARENTS' ATTITUDES, AND ACTUAL PARENTAL ATTITUDES*

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A. INTRODUCTION

The present research was designed to clarify some of the relationships between parental ideology and the ideology of their children, an area of investigation that is receiving increasing attention.

While it was expected that the results of this investigation would contribute information relevant to several questions, the only specific hypothesis advanced was that there would be relatively high (.50 or above) correlations between the scores of young adults on the California F Scale (1), the instrument used in this research, and those of their parents of the same sex. This expectation seemed reasonable in view of research which has reported that males perceived the father as their role model (5) and that college males identify more readily with the father while college females identify more readily with the mother (2).

B. METHOD

The subjects were 614 white Ss in introductory psychology classes, attending the University of Miami during the 1957-58 school year. Sixty-five per cent were males ranging in age from 16 to 59 years and having a median age of 21 years; 35 per cent were females ranging in age from 16 to 45 years and having a median age of 19 years. Religious preferences of the Ss were 30 per cent Jewish, 28.5 per cent Catholic and 41.5 per cent Protestant.

Ss were tested using serially numbered F Scales. After completing the scales, the Ss were requested to address an envelope to their parents and sign a form letter soliciting their cooperation in separately and privately filling out F Scales also. The F Scales mailed to the parents were numbered with the same number as their offspring. Forty-four per cent of the questionnaires

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were completed and returned. The Ss were retested twice at a later date with instructions to fill out the F Scale as they thought their father would answer it and then as they thought their mother would answer it.

C. RESULTS AND DISCUSSION

The comparisons obtained are summarized in Table 1 for males and in Table 2 for females. References to specific cells of these tables in the discussion are noted as cell 132, for example. The first numeral, 1, refers to Table 1 while the second numeral, 3, refers to row 3 and the third numeral, 2, refers to column 2. This cell, 132, shows the correlation between male mothers' F scores and male fathers' F scores. Reading horizontally from the top to the bottom in this cell, M, the mean of male mothers' F scores is 127.83; r , the correlation coefficient between male mothers' F scores and male fathers' F scores, is .603; p , the probability level of the correlation, is less than .01; N , the number of pairs of male mothers' F scores and their spouses, male fathers' F scores, is 127; and sigma, the standard deviation of male mothers' F scores, is 31.28. Now looking at the same cell and reading vertically from left to right, the mean of male fathers' F scores is 133.35 and the standard deviation of male fathers' F scores is 30.40.

The data show that the F scores between males and females within each generation group are quite similar. Comparison of each of the six vertical means and sigmas of column 1 of Table 1 with the parallel means and sigmas of Table 2 reveals that in each case the mean male S F score and sigma are quite similar to the mean female S F score and sigma. The means for fathers and mothers, the horizontal means given in cells 121, 131, 221 and 231 are not significantly different.

However, the Ss displayed significantly less authoritarianism on the F Scale than their parents. All four differences between the means of Ss and parents (see cells 121, 131, 221 and 231) are statistically significant (p less than .01), a result consistent with an earlier report (7).

Cells 132 and 232 show relatively high correlations between the F scores of mothers and fathers, tending to corroborate earlier findings (e.g., 4), that a great deal of correspondence exists in the attitudes, habits, likes and dislikes of married couples.

That males correlate significantly with their mothers but not their fathers while females correlate significantly with their fathers but not their mothers is shown in cells 121, 131, 221 and 231. The correlation between males' F score and males' fathers' F score was relatively low, $r = .125$ and not significant, while the correlation between males' F score and males' mothers' F

score was .275 and significant (p less than .01). The correlation between females' F score and female fathers' F score was .235 and significant (p less than .05), while the correlation between females' F score and female mothers' F score was .188 and not significant. Previous results (6, 7), while not as extensive as the present data, are in general agreement with the present findings.

This surprising finding may in some fashion be a residual manifestation of Oedipal relationships. Or, since young adults of college age are quite aware of and interested in the opposite sex, the students might be using, consciously and unconsciously, their opposite-sexed parent as a reference point against which to compare acquaintances of the opposite sex and thus be more aware of the attitudes of the opposite-sexed parent. Some support for this possibility is provided by data from the present study discussed below which shows a tendency for students to be more aware of the attitudes of the parent of the opposite sex than of the attitudes of the same-sexed parent.

How accurately can college Ss estimate their parents' F scores? Cells 152, 163, 174, 252, 263 and 274 present data bearing on this question. In all six comparisons the mean Ss' estimate is somewhat higher than the parents'

TABLE 1
SUMMARY OF DATA FOR MALES

FEMALES F SCORES		M G R P N S			TABLE 2	
(1)					SUMMARY OF DATA FOR FEMALES	
FEMALES	M		125.18			
FATHERS F SCORES	T		.235			
(2)	R		<.05			
FEMALES	N		.96			
MOTHERS F SCORES	S		20.32			
(3)			25.51			
FEMALES	M	124.29				
FATHER F SCORE + MOTHER F SCORE	G	.188				
2	R	>.05				
(4)	P	.106				
FEMALES	N	124.84				
ESTIMATION OF FATHER F SCORE	S	.539				
(5)		<.01				
FEMALES	M	129.50				
ESTIMATION OF MOTHER F SCORE	G	.467				
(6)	R	<.01				
FEMALES	P	129.50				
ESTIMATION OF FATHER F SCORE + MOTHER F SCORE	N	.397				
(7)	S	<.01				
FEMALES	M	132.58				
ESTIMATION OF FATHER F SCORE + MOTHER F SCORE	G	.337				
(8)	R	<.01				
FEMALES	P	132.58				
ESTIMATION OF MOTHER F SCORE	N	.296				
(9)	S	<.01				
FEMALES	M	130.30				
ESTIMATION OF FATHER F SCORE + MOTHER F SCORE	G	.436				
(10)	R	<.01				
FEMALES	P	130.30				
ESTIMATION OF MOTHER F SCORE	N	.69				
(11)	S	22.42				
FEMALES	M	132.32				
ESTIMATION OF FATHER F SCORE + MOTHER F SCORE	G	.449				
(12)	R	<.01				
FEMALES	P	132.32				
ESTIMATION OF MOTHER F SCORE	N	.69				
(13)	S	23.83				
FEMALES	M	127.17				
ESTIMATION OF FATHER F SCORE + MOTHER F SCORE	G	.20.91				
(14)	R					
FEMALES	P					
ESTIMATION OF MOTHER F SCORE	N					
(15)	S					
FEMALES	M	128.66				
ESTIMATION OF FATHER F SCORE + MOTHER F SCORE	G	.728				
(16)	R	<.01				
FEMALES	P	128.66				
ESTIMATION OF MOTHER F SCORE	N	.69				
(17)	S	23.30				

actual mean score, though the difference reaches significance only for estimation of mother's F score by males. Low but significant correlations between the Ss' estimates of the parent's F score and the parent's actual F score were obtained for all six correlations. Though none of the differences between the six correlations was significant, it is interesting to note that the correlations for female students were all higher than the similar correlations for male students and that, for both males and females, there was a higher correlation between the student's estimate of the F score of the parent of the opposite sex and that parent's actual score. Also, the estimated F scores for mothers is somewhat higher than that for fathers, but not significantly so, for both male and female students (see cells 151, 161, 251 and 261). Finally, the correlations in cells 165 and 265 show high and significant relationships (p less than .01) between students' estimates of their mothers' F score and their estimates of their fathers' F score, indicating that students expect considerable agreement between their parents on the attitudes tapped by the F scale.

A striking aspect of these data is that the correlations obtained between S 's estimates of parent's F scores and the actual F scores of the parents are so

low. The correlations of .250, .273, .397 and .296 shown in cells 152, 163, 252 and 263 seem especially low in view of the many years of close association with parents during which time children presumably have ample opportunity to become familiar with their parents' attitudes. This rather poor ability to estimate parental attitudes seems to be in marked contrast with Bronson's (3) conclusion that children tend to perceive parental behavior very accurately.

Why are college *Ss* such relatively poor judges of the authoritarian-equalitarian attitudes of their parents? Several things may have contributed to this inaccurate judgment. One is that the parents may have expressed to their children a set of attitudes and standards which they thought their children should follow rather than presenting their true values and beliefs. Also, in experiencing, perhaps frequently in emotional situations, parental authority in the transmission and enforcement of the expectations, standards and restrictions of society, the children may easily have misperceived or distorted the true attitudes of the parents.

Tentative support for this interpretation comes from the present data which suggests a tendency for *S* attitudes to be more in line with what they think their parents' attitudes are than what the parents' attitudes really are. Thus, the correlations between the scores of *Ss* and those of their parents is .220 and .381 (cells 141 and 241) while the correlation between the scores of students and their estimates of their parents' scores is .442 and .436 (cells 171 and 271). While the differences between these correlations are not significant, both differences are in the direction supportive of the above interpretation.

It is clear that the results of this study do not support the hypothesis that there would be a relatively high correlation between scores of young adults and their parents of the same sex on the F Scale. On the contrary, some unexpected relationships were obtained, notably between young adults and the opposite-sexed parents, which point up the desirability of further research in this area.

D. SUMMARY

The California F Scale was administered to 614 college students. It was also mailed to their parents who were asked to fill it out independently. At a later date, the *Ss* were retested twice, first with instructions to answer the F Scale as they thought their father would answer it and then as they thought their mother would answer it.

The major results and conclusions were:

1. The scores between males and females within each generation group were not significantly different.

2. The college Ss displayed significantly less authoritarianism than their parents.
3. Relatively high, statistically significant correlations were found between the scores of married couples in the parent group.
4. Males correlated significantly with their mothers but not with their fathers while females correlated significantly with their fathers but not with their mothers.
5. It was concluded that the college Ss in this study were relatively poor judges of the authoritarian-equalitarian attitudes of their parents.
6. Regularities among certain of the results, while not statistically significant, tended to suggest that the S's image of the mother is that she is more restrictive and authoritarian than she actually is, that females are more aware than are males of their parents' attitudes, and that the college S is more aware of the attitudes of the parent of the opposite sex than of the attitudes of the similar-sexed parent.

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A SURVEY OF THE UNDERGRADUATE COURSE IN SOCIAL PSYCHOLOGY*

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A. PROBLEM

The field of social psychology is remarkable for its growth and sphere of influence in recent years. The number of books and articles, the range of topics it investigates, and the widespread interest shown in its discoveries and formulations attest to its influential place in the social sciences and in modern intellectual life in general. Despite these facts, little systematic knowledge is available about the way it is presented within the academic settings with which it is so closely identified.

The fact that there is little done on this aspect of the field is regrettable, both in terms of general interest as to how it fares on the academic calendar, and how those who teach it as an academic discipline look at their field and present it. It has been remarked by an eminent social psychologist that social psychology has barely begun to emerge with its own identity:

The data and problems of social psychology have barely been identified, and the questions that have been studied in the recent period refer to only a small part of the field. . . . The task that faces the student is . . . how to proceed during the first stages of exploration in a difficult and uncultivated territory. . . . Social psychology still works largely with borrowed conceptions that have not been sharply tested on its own grounds. It has not yet achieved an independent outlook on its data and problems (1, p. 363).

This may very well be the case, but let us suppose that one were preparing to teach a course in social psychology, in a context in which the comments by Prof. Asch were admitted to be so. One would, unless perhaps he were treating only a small portion of the field, be forced to organize his thinking around whatever material was available and to supply many aspects of the course from what might only be potentials in the light of actual developments in the field. Perhaps there would be a great element of speculation as to future discoveries and directions in the field, but these would be fascinating to know and to check in light of future actualities. Prof. Asch himself offers

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an important observation on the subject matter of social psychology almost directly after presenting the above quoted remarks:

The main aim of social psychology . . . is to further a theory of human nature . . . (1, p. 364).

The previously published studies most relevant to this problem were discussed in a UNESCO publication of 1954, based on a paper compiled in January, 1952, by Dr. Wilbert S. Ray from studies made for the Committee on the Teaching of Social Psychology of Division 9 of the A.P.A. This report states that 71 per cent of the liberal arts colleges and universities in the United States of America offer courses named Social Psychology for the usual one term which includes 45 hours of class work. Besides a theoretical focus, such courses also have a practical or applied interest "because their content is concerned with the analysis of contemporary social phenomena. They usually include some historical treatment of theory, examination of current theory, survey of methods, and extensive critical review of empirical research." The UNESCO study does not present results on the use of various teaching methods employed by social psychology instructors, but it does mention several techniques in which interest has been shown in the United States of America. In addition to "the usual run" of lectures, discussions, assigned reading, reports, films, and recordings, instructors show interest in non-directive teaching, role-playing and "buzz" sessions. A laboratory section for the introductory course is found "in a very few institutions, and this sort of thing may increase" (2, p. 142). It is reported that class testing ranges from a short examination every time the class meets to no examinations at all. No data were gathered as to types of items used in these examinations.

No information was obtained as to the different topics covered in the course, or the role that the various research techniques have in its organization. Almost all students of social psychology are taught to recognize, if not use, controlled interviews, content analysis, projective or indirect measurement techniques, and controlled observation. No information was obtained for the way in which instructors dealt with the assignation of grades.

The present study, then, was undertaken to find out something about related opinions of those who teach such courses in order to gather more data relevant to the problems and issues raised in the UNESCO report.

B. METHOD

To bring the study into focus, it was decided to concentrate on introductory or general courses in social psychology given in undergraduate institutions granting four-year liberal arts degrees. The introductory or

general course was chosen because it was felt that in a field which is still in its formative stages this type of course, demanding the formulation of an approach to the entire field, would impose the most interesting and creative problems for the instructor. Of the 935 liberal arts institutions listed in the Education Directory of the U. S. Department of Health, Education and Welfare, the catalogs of 856 (92 per cent) were investigated. Of these, 708 catalogs listed social psychology courses (83 per cent of the catalogs investigated).

Two major sub-populations were created from which the sample was drawn. The first sub-population was defined as the "prestige" institution group, so designated by investigation of library size: those institutions whose libraries contain 500,000 or more volumes were considered to be "prestige" schools ($N = 50$). The second sub-population consisted of the remainder of the institutions whose catalogs were seen (called the "typical" schools) ($N = 220$). The total N for the sample drawn from the sub-populations was 340. To each institution included in the sample was sent a questionnaire and a covering letter. The questionnaire consisted of 23 items dealing with four main areas of interest: information about the administrative details of the course, information about the subject-matter content of the course, information about teaching methods and related course procedures, and information about course instructors' background and opinions on various relevant topics dealing with social psychology.

C. RESULTS AND DISCUSSION

Returns were received from 238 institutions (70 per cent of sample). There were 187 returns which were suitable for tabulation (55 per cent of sample). There was a mean number of 55 students in "prestige" school courses, and a mean number of 28 students in "typical" school courses. Most courses were reported as running from 15 to 18 weeks, meeting three times per week, with each meeting lasting from 50 to 60 minutes. Most courses offered by the psychology departments ask for General Psychology as a prerequisite, though courses offered by sociology departments tended more to require both General Psychology and General Sociology as prerequisites. In the "prestige" schools, 32 courses are offered by the psychology department, seven courses are jointly offered by the psychology and sociology departments, and six courses are offered by the sociology department. In the "typical" schools, 71 courses are offered by the psychology department, 30 courses are jointly offered by psychology and sociology departments, and 28 courses are offered by the sociology department.

Instructors' replies on their working definitions of social psychology showed that the definition given most often was *the study of the individual as influenced by social factors*, though in the "prestige" schools there was strong support, especially in psychology department courses, for the definition *the study of social interaction*. This one definition, *the study of the individual as influenced by social factors*, however, was found to have two differing emphases, depending on whether it is reported as a psychology department or a sociology department course. Psychology department courses tend to define social psychology as *the study of the INDIVIDUAL as influenced by social factors*, and the sociology department courses tend to define social psychology as *the study of the individual as influenced by SOCIAL FACTORS*. These varying emphases indicate the influence of the senior discipline of the department offering the course. Only when these emphases are made explicit can the single definition be seen to contain two vastly different approaches: one aimed primarily at the study of the individual and the other directed primarily at the study of social patterns with the individual as a product of such patterns. From this interpretation of the definition, there are some grounds for speaking of a social psychology of the psychologists and a social psychology of the sociologists, a distinction noted by Prof. Nuttin in the UNESCO report. A different approach was found mostly in the psychology department courses of the "prestige" schools in which considerable influence (the largest single percentage, 40 per cent) was found for the definition *the study of social interaction*, including that focus on what Prof. Nuttin in the UNESCO report termed "behavior-in-the-world."

Clear differences between psychology and sociology departments are further seen in the methods used to organize the content of the course. The instructors of psychology department courses favor a movement from the study of psychological variables, to group variables, to macrosocial variables. The instructors of the sociology department courses favor a focus on the study of the individual within various social situations. One instructor of a sociology department stated that his course could as well be called Social Personality as Social Psychology. It should be noted that this was borne out as a general characteristic of sociology department courses. In the response to the item asking instructors for the names of those whose work had the greatest influence on their own thinking about social psychology, sociology department instructors chose mainly persons whose work has been in personality and theories of the self (Freud, G. H. Mead, Horney, Fromm).

Textbooks most often used in the "prestige" schools were: 1. SPSSI *Readings in Social Psychology*, 2. Sherif and Sherif, 3. Sargent and Williamson, and

4. Newcomb. In the "typical" schools the results were: 1. Sargent and Williamson, 2. Klineberg, 3. SPSSI *Readings*, 4.5 Newcomb, 4.5 Sherif and Sherif. Instructors of sociology department courses, however, favored the text by Lindesmith and Strauss over the above-mentioned books.

Results on topics which instructors covered during the course showed that for all schools the first six choices were: attitudes, socialization and personality development, prejudice and ethnic relations, culture and personality, group development behavior, and communication. The following five topics were those to which most emphasis was given in all schools: socialization and personality development, culture and personality, attitudes, group development and behavior, and basic motives and drives. In the breakdown by department, the most striking differences appear between the psychology department courses and the sociology department courses of the "typical" schools. The first five choices for the psychology department courses were: attitudes, culture and personality, basic motives and drives, prejudice and ethnic relations, and social perception. For the sociology department courses the first six choices were: socialization and personality development, communication, social change and social movements, group development and behavior, basic motives and drives, and social perception.

Rank order for theoretical positions used by instructors of all schools as a basis of class instruction was: 1.5 field theory, 1.5 role theory, 3. cognitive theory, 4. stimulus-response theory, 5. psychoanalytic theory. Theories used most often were ranked: 1. stimulus-response theory, 2.5 field theory, 2.5 role theory, 4. cognitive theory, 5. psychoanalytic theory, 6. symbolic interactionist theory.

Research techniques reported as emphasized in class were: experiments, general methods appropriate for the observation of social behavior, cross-cultural methods, attitude measurement, and sociometric measurement.

Most instructors reported that students were given little or no responsibility for either choosing topics for the course, determining assignments, determining grades, or preparing class examinations. Most instructors gave students some responsibility for leading class discussions.

Results on the use of teaching methods showed that techniques in which the UNESCO study stated instructors have shown "widespread interest," i.e., nondirective teaching, "buzz" sessions, and role-playing, were not found to be widely used.

The types of small-group work most often used by instructors were: discussion groups, project teams or groups, and role-playing groups. The percentages, however, were modest, and small-group work did not prove to be

used as much as its merits, discovered largely through social psychological research, might warrant. The data here, as elsewhere in the study, made it inescapable to conclude that, in general, social psychology instructors are not yet mirroring in their own teaching some of the implications of their own work. One can only express the hope that this will not always continue to be the case.

Instructors of the "prestige" schools think that social psychology most appropriately belongs in the psychology department (49 per cent), 27 per cent think it should be a joint offering of the psychology and sociology departments, and 9 per cent think it might be offered by either department. For the "typical" school instructors, 40 per cent think the course belongs in the psychology department, 40 per cent think it should be a joint offering of the psychology and sociology departments, and 10 per cent think it ought to be offered by the sociology department.

Instructors of the "prestige" schools spend about as much of their professional time in research as they do in teaching, whereas most of the time (63 per cent) of "typical" school instructors is spent in teaching, and an average of 15 per cent of their professional time is spent in research.

Rank order of the names of those whose work had influenced the instructors of all schools in their own thinking about social psychology was: 1.5 G. Allport, 1.5 Lewin, 3. Freud, 4. M. Mead, 5.5 Newcomb, 5.5 Sherif, 7. Klineberg, 8. Murphy, 9. G. H. Mead, 10. Horney, 11. Dollard, 12. Linton. Rank order of those whose work had the greatest influence on the thinking of the instructors was: 1. Lewin, 3. G. Allport, 3. Freud, 3. G. H. Mead, 5. Sherif, 6. Newcomb, 7. Klineberg, 8. Fromm. Although several sociologists were chosen very often by instructors of sociology department courses (e.g. influence: Durkheim, Parsons, M. Weber, Simmel, Homans; greatest influence: M. Weber), none of these names appears when rank orders were figured for all departments of all schools.

Instructors indicated that the six most crucial areas of exploration for social psychology are: socialization, attitudes, communication, prejudice, ethnic relations, and group dynamics. Many (47 per cent) of the sociologists favor exploration in socialization and related problems, whereas many psychologists favor work on attitudes. Here, as elsewhere, the sociologists do not show much interest in the work on attitudes, though psychologists consistently indicate this topic as one of their main concerns.

Instructors of all schools chose as the nine crucial areas where the results of social psychological research and theory might best be applied: prejudice and ethnic relations, education, control of group behavior, youth and family

life, attitudes and attitude change, industry, international relations, personality development, and politics. The psychology department instructors favor application in the areas of prejudice and ethnic relations, and education, whereas the sociology department instructors favor the areas of industry, youth and family life, and control of group behavior.

The sociologists do not show so much interest in exploration or application in prejudice, ethnic relations, group dynamics, or social perception as do the psychologists. Their interest in socialization, communication, and self-concepts suggests that "social personality" is indeed the theme expressing their major interest in the field.

D. SUMMARY

The results of this study indicate that several differing conceptions of the field of social psychology exist. Some respondents emphasized a psychological framework as the most appropriate focus for the field. Others saw in a sociological framework the most fruitful approach. A third point of view, reported mostly by the "prestige" schools, emphasized a merging of these first two conceptions, best summarized in Prof. Nuttin's capsule description of the subject matter of social psychology as emerging in the future into a truly single discipline with its own point of view and conception of itself.

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INTELLIGENCE TEST PATTERNS OF PUERTO RICAN CHILDREN SEEN IN CHILD PSYCHIATRY*

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A. PURPOSE

For the past thirty years there has been a steady increase in Puerto Rican migration to the mainland, particularly to New York City. Morrison and Goodman (8) stated in 1959 that "one out of every eight pupils in New York City is a child of Puerto Rican background. In Manhattan every third child in the classrooms of the public schools was born in Puerto Rico or born in New York of parents who were natives of Puerto Rico."

Since such a large percentage of New York City's school population is composed of Puerto Rican children, there has been much concern about their intellectual capacity and their ability to adapt to the program offered to them in the schools.

As early as 1935, Armstrong, Achilles and Sacks (1) reported "Psychological examinations administered to a random sampling of Puerto Rican children in New York City, a half of whom were born here, the majority of whom had been here over half their lives at least, demonstrates a marked and serious inferiority in native ability to public school children here." Since the sample tested came from very underprivileged areas of the city and were matched with a control group of children living in very exclusive areas, it is highly doubtful that the results reported are valid.

Most social psychologists have serious doubts that there are innate class differences in intelligence. Halsey (6) in his study, *Social Structure and Intelligence* came to the conclusion that observed differences between classes could more likely be attributed to environmental than to genetic factors. More specifically, the researches, among others, of Klinberg, Gordon and Freeman (7) disclosed that environmental factors such as the type of home, the opportunities for intellectual development, and nutrition affect performance in intelligence tests.

A more recent, elaborate research project, *The Puerto Rican Study*, sponsored by the New York City Board of Education and directed by

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Morrison and Goodman, was reported on in 1956 (5) and again in 1959 (8). Three groups of Puerto Rican children island born and island schooled, island born and mainland schooled, mainland born and mainland schooled, and non-Puerto Rican children with equated backgrounds as controls, in grades 4 and 7 were given a nonverbal test of intelligence. The control group in both grades and the mainland born-mainland educated group in the 7th grade achieved average mean *IQs*, the island born-island educated groups achieved borderline mean *IQs*, while the other groups achieved low average mean *IQs*. In 1959 Morrison and Goodman reported "Both for pupils tested in Grades 4 and 7, the second and third testings spaced a year apart each resulted in successive increases in average *IQ* in all four groups . . . the longitudinal study indicates that *IQ* as measured by a non-verbal test of intelligence is not constant. Pupils of Puerto Rican background may test originally in the 70's or 80's, but both the island-born exclusively New York schooled, and the mainland-born pupils of Puerto Rican parentage can be expected if tested several times over a two-year period to test in the 90's and even around 100." Significantly for the present study to be reported the island-born, island-educated pupils originally tested in the 4th grade gained only 6.7 points, while those originally tested in the 7th grade gained 15 points. This might be attributable to maturational factors but then, again in keeping with the findings of social scientists regarding the effect of environment on intelligence, it might well represent the loosening of home ties of the older groups with the concomitant opportunity to become better acculturated.

This present study is a downward extension of an exploratory study (3), the purpose being not only to investigate the general intelligence of the Puerto Rican child but also to note the pattern of his intelligence, and the changes, if any, as he matures. As with Brown's study, this can be considered only an exploratory investigation because of the specific nature of the sample and the lack of an adequate control group.

B. PROCEDURE

The records of 92 Puerto Rican children from six to 15 years of age seen in the Division of Psychology, Department of Psychiatry at the Mount Sinai Hospital between 1952 and 1961 were examined for the results obtained on the Wechsler Intelligence Scale for Children. Of these 92 children, 71 had been given the full scale WISC but all had been given the Performance scale. The children were divided into three age groups, 6 through 8-11, 9 through 11-11, 12 through 14-11, whose means were the three age levels of the

total standardization samples reported in the WISC manual. Their weighted scores on the WISC were converted into *IQ* equivalents so that the scores they obtained could be uniformly expressed in terms of the *IQ*.

C. RESULTS AND DISCUSSION

As seen in Table 1, the Verbal scale *IQ* for the three groups is consistently lower than the Performance scale *IQ*, although there is a slight increase at the early adolescent level. This undoubtedly is at least partially attributable to the bilingual background of these children. The 6-to-9 group's Full scale mean *IQ* of 82.69 fell within the dull normal range, and its *SD* of 13.30 showed much less variability than the standardization group whose mean *IQ* was 100.3 and whose *SD* was 18.0. The 9-to-12 group's mean *IQ* of 80.87 also fell within the dull normal range in comparison with the standardization group's mean *IQ* of 100.2, and its *SD* of 15.43 showed much less variability than the standardization group's *SD* of 21.4. In contrast, although the early adolescent, 12-to-15 group's mean *IQ* of 85.89 was still within the dull normal range in comparison to the standardization group's mean *IQ* of 99.8, it showed much greater variability than the younger groups, its *SD* of 20.40 being commensurate with the standardization group's *SD* of 20.7. Whereas the three standardization groups' variability changed comparatively little, the third Puerto Rican group's variability increased markedly over the two younger groups. Although an increasingly greater percentage of children within the groups tested fell within the mentally defective range, very significantly none of the two younger groups achieved high average to superior *IQ*s, but almost as large a percentage of the early adolescent group, 26 per cent, achieved high average to superior *IQ*s as obtained mental defective *IQ*s. This is in keeping with the findings of the New York City's Puerto Rican Study that although both younger and older groups of Puerto Rican children tested over a period of two years showed an increase in *IQ*, the older group (adolescents) showed a very much larger increase in comparison to the younger groups. This also lends further credence to the possibility that the close home ties of the younger Puerto Rican child, the limited opportunity for him to speak English excepting in school, the uniformity of the cultural background to which he is exposed, together with the uniformity of demands and expectations his culture makes upon him, and the limited opportunity he has to associate with children from other cultural backgrounds, might very well account for the small intellectual variability within his group and the poor showing made at the upper end of the curve of intelligence. On the other hand, the early adolescent's large percentage of scores at the

TABLE 1

	<i>N</i>	Mean <i>IQ</i>	<i>SD</i>	Classification	Per cent of patients in <i>IQ</i> 40-69 range	Per cent of patients in <i>IQ</i> 110-129 range
6 — 8-11						
Full scale	13	82.69	13.30	Dull normal	7.7	0
Verbal scale	13	78.08	13.00	Borderline	23.0	0
Performance scale	22	89.86	16.91	Average	9.0	9.0
9 — 11-11						
Full scale	39	80.87	15.43	Dull normal	20.5	0
Verbal scale	39	78.89	14.14	Borderline	20.5	0
Performance scale	48	87.06	17.29	Dull normal	18.8	6.3
12 — 14-11						
Full scale	19	85.89	20.40	Dull normal	31.6	26.3
Verbal scale	19	83.63	18.71	Dull normal	21.0	21.0
Performance scale	22	90.32	20.71	Average	13.6	18.2

upper end of the curve might very well reflect his growing independence, his breaking away from home ties and cultural insularity, and his seeking broader cultural horizons. Unfortunately an equally large percentage of the early adolescent's scores remain at the lower end of the scale, which undoubtedly partially reflects native endowment but might also reflect a feeling of insular security with accompanying timidity in seeking broader horizons. If our highly specific sample reflects at all the intelligence of the general population of Puerto Rican children (our results are commensurate with those obtained in the Puerto Rican Study, the mean *IQ* of the 4th grader being 80.38, and the mean *IQ* of the 8th grader being 85.67, although allowance must be made for the different intelligence scales used) then, it is highly significant that in our sampling one out of every four adolescent Puerto Rican children has high average to superior intelligence, and is potentially college material.

From the pattern of the subtest scores even though language is consistently a handicap, the Puerto Rican child at all age levels is comparatively well able to verbalize what is expected in social situations, although when he becomes personally involved his ability to plan and anticipate the outcome is less adequate at the earlier age levels but increases with age. He usually makes a better showing when verbal communication is not involved, general information and vocabulary being consistently poor, although there is a slow but steady improvement over the years. However, even at the early adolescent age level, where 26 per cent of our sampling showed high average to superior intelligence, the mean *IQ* on the Vocabulary subtest was borderline, and 47 per cent of the children taking the test had mental defective ratings in this area. According to Cohen (4) for children who have a language handicap, the best measures of global intelligence among the subtests of the WISC are the Picture Arrangement and Block Design subtests. On these tests, the two younger groups achieved dull normal mean *IQ*s while the adolescent group achieved an average mean *IQ*. The capacity to learn English is certainly there.

Departing from interpretation of the individual subtests, and interpreting the results of the tests according to Cohen's (4) factorial analysis, the 6-to-9-year-old group obtained a borderline rating on Verbal Comprehension (\bar{M} 76.57, SD 17.17) and a rating at the upper end of the dull normal range on Perceptual Organization (\bar{M} 89.47, SD 24.03). Freedom from Distraction, according to Cohen, could not be ascertained with this age group or with the 9-to-12-year-olds because no subtest could be found to supplement Digit Span in order to determine this factor. The 9-to-12-year-old group

TABLE 2

Subtest	Mean IQ	SD	Classification	Per cent of patients in IQ 40-69 range	Per cent of patients in IQ 110-129 range
6 — 8-11					
Information	69.92	13.53	Borderline	53.8	0
Comprehension	87.85	18.95	Dull normal	15.4	15.4
Arithmetic	77.31	16.25	Borderline	38.5	7.7
Similarities	79.00	21.52	Borderline	38.5	7.7
Digit span	78.45	16.13	Borderline	54.4	9.0
Vocabulary	69.50	14.66	Borderline	60.0	0
Picture completion	97.14	22.00	Average	0	31.8
Picture arrangement	80.59	22.83	Dull normal	27.3	13.6
Block design	92.36	15.81	Average	9.0	13.6
Object assembly	86.57	32.25 ^c	Dull normal	28.6	23.8
Coding	91.95	30.61	Average	25.0	30.0
9 — 11-11					
Information	75.03	14.87	Borderline	41.0	0
Comprehension	89.82	16.43	Average	15.4	10.3
Arithmetic	74.95	20.93	Borderline	45.9	2.7
Similarities	80.79	20.91	Dull normal	41.0	10.3
Digit span	78.00	19.75	Borderline	26.3	5.3
Vocabulary	66.45	24.00	Mental defective	48.3	0
Picture completion	91.10	22.91	Average	18.8	20.8
Picture arrangement	85.27	21.95	Dull normal	22.9	12.5
Block design	84.36	21.63	Dull normal	29.8	8.3
Object assembly	91.81	23.11	Average	17.0	29.8
Coding	84.02	25.87	Dull normal	32.6	10.0
12 — 14-11					
Information	80.21	13.42	Dull normal	31.6	5.3
Comprehension	89.53	23.22	Average	21.0	21.0
Arithmetic	85.89	20.62	Dull normal	26.3	15.3
Similarities	89.44	27.09	Dull normal	33.3	16.7
Digit span	84.33	22.09	Dull normal	38.9	16.7
Vocabulary	78.24	22.18	Borderline	47.0	11.8

TABLE 2 (*continued*)

Subtest	Mean <i>IQ</i>	<i>SD</i>	Classification	Per cent of patients in <i>IQ</i> 40-69 range	Per cent of patients in <i>IQ</i> 110-129 range
Picture completion	91.00	21.21	Average	18.2	22.7
Picture arrangement	90.41	22.25	Average	18.2	13.6
Block design	92.27	23.02	Average	18.2	22.7
Object assembly	86.72	19.52	Dull normal	18.2	18.2
Coding	90.15	29.87	Average	30.0	20.0

also obtained a borderline rating on Verbal Comprehension (\bar{M} 78.02, SD 19.03) and a dull normal rating on Perceptual Organization (\bar{M} 88.09, SD 22.37), while the 12-to-15-year-old group achieved a dull normal rating on Verbal Comprehension (\bar{M} 84.36, SD 21.48), a near average rating on Perceptual Organization (\bar{M} 89.50, SD 21.27), and a dull normal rating on Freedom from Distraction (\bar{M} 85.11, SD 21.36), which shows an appreciable increase in Verbal Comprehension over the younger age groups.

The results of the early adolescent group on the WISC were, in general, similar to the results of the adult psychiatric Puerto Rican patients on the Wechsler reported by Brown, their Full scale *IQ* of 85.62, SD 19.48 being comparable to the adolescent's Full scale *IQ* 85.89, SD 20.40, their Verbal scale *IQ* of 84.29, SD 17.40 being comparable to the adolescent's Verbal scale *IQ* of 83.63, SD 18.71, and their Performance scale *IQ* of 89.55, SD 20.10 being comparable to the adolescent's Performance scale *IQ* of 90.32, SD 20.71. While the adult group showed better verbal comprehension, the adolescent group showed better analytic and synthesizing ability in situations not requiring verbal communication as well as much less anxiety.

Our findings raise many questions concerning the intelligence of Puerto Rican children and early adolescents, just as the previous study of adult psychiatric Puerto Rican patients has done. While these cannot be regarded as "normal" children, it was shown in Brown's earlier study that non-Puerto Rican psychiatric patients earned a W-B Verbal scale *IQ* of 108; Performance scale *IQ* of 108.48; and a Full scale *IQ* of 109.08. The fact that psychiatric patients were being evaluated may therefore not prove as significant as it might appear at first.

In order to compare our findings with those of children tested in Puerto Rico we examined results based upon a Spanish translation and adaptation of the WISC (10). In standardizing this scale for use in the Puerto Rican Public Schools a total of 128 children from grades I through VIII were tested. Three separate groups were tested, the first consisting of 18 children in grades I through VI who were examined for the primary purpose of familiarizing the examiner with administrative techniques and observing how the scale would function with Puerto Rican children. A second group of 69 children was used as the basis for a first modification in the translation of the Verbal scale and a third group of 41 children for the final modification of this scale.

The first group yielded a median Verbal scale *IQ* of 84.59; Performance scale *IQ* of 85.50; and a Full scale *IQ* of 80.75. Wechsler points out that while the scores slant toward the lower end of the distribution it should

be noted that these medians are being compared with norms established on children from another country and with a different idiom, that the number of cases is small and that most of the children were of low socioeconomic status.

Wechsler's total Puerto Rican group obtained a median Full scale *IQ* of 87.94 and a mean *IQ* of 88.01, *SD* 21.60. This is somewhat higher than our own total Full scale *IQ* of 82.55, *SD* 16.69. The difference is significant at the 4.5 per cent level of confidence. It is also somewhat higher but more closely comparable to the mean Puerto Rican adult Full scale *IQ* of 85.62, *SD* 19.48. However, it still places the children tested in Puerto Rico in the dull normal category when compared with American norms despite translation and adaptation of the scale.

Several factors may account for the consistent finding of dull normal intelligence for Puerto Rican children, adolescents and adults. Those relevant for children in our own group have already been mentioned. With regard to children tested in Puerto Rico it can be hypothesized that low scores may be attributed to the low socioeconomic status of the groups tested; the inherent difficulty of adapting an intelligence scale which reflects so many aspects of the culture in which it was developed to another culture where such values are minimal; the significant difference between an American society in which competitiveness and the dynamics of upward mobility within a success context pressures the individual from an early age (2) and one in which such spurs to achievement are absent; and the influence of unconscious negative attitudes toward excelling in a task which involves a competitive element.

The importance of this problem for cross-cultural research is outstanding and would warrant a more detailed and controlled study of the intelligence of Puerto Rican children and adults in Puerto Rico. In order to make such a study meaningful it would be necessary to obtain an adequate socioeconomic sample and to investigate attitudinal factors affecting test responsivity.

D. SUMMARY

The purpose of this study was to investigate the intellectual pattern on the WISC of Puerto Rican children, six to 15 years of age, seen in a child psychiatry clinic, and to discover the differences, if any, in the subtest pattern of the three age groups into which the children were placed.

Our results showed consistent dull normal intelligence with better perceptual organization than verbal comprehension. However, there were differences in the subtest pattern of the three groups and an increase in *IQ* in

the adolescent group. In contrast to the two younger age groups in which none of the children had high average to superior intelligence, 26 per cent of the adolescent group were high average or above in intelligence, possibly suggesting the effect of broader social and cultural influences with the loosening of home ties at adolescence.

Our findings are consistent with the results obtained in Puerto Rico with a small sample of children from a low socioeconomic background who were given a newly devised Spanish translation and adaptation of the WISC. Further research appears indicated to investigate whether the consistent dull normal intelligence found in this and other studies of Puerto Rican children, mostly from low socioeconomic backgrounds, reflects innate ability or is the result of sociological factors. A need is suggested for a more extensive and controlled study of the intelligence of native Puerto Rican children covering an adequately stratified socioeconomic sampling.

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THE INSTITUTIONALIZATION OF MENTALLY NORMAL EPILEPTICS WITH THE RETARDED: A SOCIO- PSYCHOLOGICAL ANALYSIS*

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A. INTRODUCTION

A key phrase drawn from the act which charters the Southbury Training School, Southbury, Connecticut, is of particular interest to any epileptologist: "... for the care, custody, treatment, training, and employment of mentally deficient, feeble-minded, or epileptic persons. . . ."¹ By this unqualified inclusion of epileptics, not only is the general problem of their management and development pointed up but also the special problem of the commitment of mentally normal epileptics to an institution designed for the retarded.

The purpose of this paper is to present some preliminary answers to major questions which it poses: What kinds of nonretarded epileptics are placed in the Southbury Training School,² why are they placed there, and what are the chances of their being returned to their homes and communities? Another question whose implications underline the importance of those above is: What are the effects on nonretarded epileptics of being placed indefinitely in a population of retarded? Some knowledge of epilepsy, of the training school, of our culture, and of human behavior gives special interest to the general question: What purposes are served when nonretarded epileptics are committed to an institution for the retarded?

In order to answer these questions meaningfully it is first necessary to review briefly some cogent points about epilepsy.³

* Received in the Editorial Office on November 29, 1961.

¹ *Social Welfare Laws of Connecticut*, State of Connecticut, 1949, p. 89. This charter remains the same today except that the Southbury Training School is now under a Central Office of Mental Retardation which is headed by the Deputy Commissioner of Health.

² Gratitude is expressed to Dr. Frank R. Giliberty, Superintendent of the Southbury Training School, for permission to use the data, collected by Mr. Goodwillie, which are the bases of this paper.

³ Among the many writings on epilepsy two have been most useful as summary sources (5, 9). Since the bulk of the material of this section is general, only relatively distinctive points will be given special citation. Anyone interested in a more elaborate exposition of this subject is referred to any (2, 4, 7, 10, 11) or all of the references.

B. EPILEPSY

1. *Definition*

The epileptic may be defined as one who is subject to periodic loss or impairment of consciousness often accompanied by convulsions. Of the two general forms which such spells or seizures most often take, the more severe type, the grand mal attack, begins typically with a momentary peculiar sensation in some part of the body—the "aura." It is immediately followed by loss of consciousness and the rigid, or tonic, contraction of muscles. After a few seconds this stage is superseded by violent jerking movements (the clonic phase), and in another minute or more when these movements abate, the victim relaxes. Secondary aspects of the grand mal attack include falling (when the contractions occur), some initial noise or outcry, foaming at the mouth and discoloration (due to the contraction of chest and respiratory muscles), loss of bladder and bowel control, and subsequent heavy breathing and sweating. Repeated grand mal seizures may result in the gradual deterioration of mental functioning.

The milder type of attack, the petit mal, usually brings no warning and consists primarily of a sudden and momentary loss of consciousness. Although it is often accompanied by some facial twitching, falls and accidents are much less common and the victim often goes right on with what he has been doing or saying. Perhaps the most handicapping feature of petit mal spells is that they tend to occur much more frequently than grand mal seizures. With both types, however, there is great variability in frequency. Petit mal seizures alone are not likely to result in mental deterioration.

2. *Etiology*

Despite its long medical and social history (12, 14), epilepsy remains a type of condition whose causes are only imperfectly understood. There are two traditional etiological categories of convulsive disorders, "symptomatic" and "idiopathic." Symptomatic seizures are thought to result from brain lesions, while idiopathic or "essential" epilepsy means that no organic cause was discovered.

3. *Relation to Mental Retardation*

Only some one third of epileptics can be classified as mentally retarded, and the majority of those, according to Lennox, are only "slightly subnormal" (9, p. 51). Lennox lists five main causes of mental impairment among epileptics: (a) primary congenital defect in which seizures are a secondary feature; (b) brain injury producing both results; (c) deterioration due to

frequent and severe seizures; (d) improper drug treatment (especially overdosing); and (e) social-psychological insults productive of apparent sluggishness (9, pp. 52-58). One of the writers has already written on the intelligence of epileptics (1).

4. *Treatment and Prognosis*

A first step in the effort to reduce the frequency of seizures often involves some restrictions on the activity of the person and an effort to stabilize his environment. The problem is to effect the removal of possibly instigating stimuli while maintaining an environment normal enough to permit necessary social learning.

While various dietary therapies have had some success in reducing the frequency and severity of epileptic seizures, the use of drugs—in particular, phenobarbitol and dilantin sodium—have been found much more effective. Physicians able to work closely with epileptics have found it possible, through ascertaining optimum kinds, amounts and frequencies of dosage, to effect considerable control over convulsions.

Although few epileptics are able to be freed entirely of convulsions, only a relatively small minority experience convulsions which are so uncontrollable or are characterized by a mental defect which is so marked, that they cannot make a fairly satisfactory adjustment in the community, providing that these two factors are the only considerations.

5. *Psychosocial Aspects*

It is well known that a disproportionate number of epileptics have psychological problems. The literature (3, 8) in this regard generally concludes the following: (a) that brain damage involved in convulsive conditions can also directly affect the personality, (b) that there is no one-to-one relationship between convulsive symptoms and any specific personality pattern, (c) that there are many psychologically quite normal epileptics, and (d) that there is diversity even among the psychologically disturbed.

Barring evidence of critical brain damage, it is generally held that deviant behavior in an epileptic represents his adjustment to the peculiar social conditions which his convulsions (and mental defect, if present), their labels and their stigma have produced in his family and elsewhere.

C. SETTING, METHOD AND POPULATION

1. *The Southbury Training School*

The Southbury Training School in Connecticut consists of more than 20 modern buildings dispersed much like a college campus. Administrative

offices, hospital facilities and classrooms are all in separate buildings. Staff members reside for the most part in apartments or houses on or near the grounds. Their "charges" are housed in "cottages." Each cottage, supervised by houseparents, has kitchen and dining facilities, a common room with television and some recreational activities, common showers and toilet facilities, bedrooms of from 10 to 20 cots, one or more small private bedrooms, and a small room for enforced confinement.

Depending upon ages, needs, abilities, and handicaps, the activities of the individuals range from almost nothing at all to rather full days of schooling and physical work. Corporal punishment is not allowed at Southbury, but "discipline," such as unpleasant work assignments, is part of the regimen.

Compared to other institutions for the retarded, Southbury is quite advanced. In addition to its efficient physical plant, Southbury also has the enlightened goal of returning to the community as many as possible of its charges.

2. Method

The cases studied were all those admitted to Southbury since its opening in 1941 and diagnosed epileptic, *not defective*. Of the 43 subjects in this group, 28 were still in the institution when this study was undertaken. Four were on placement from the training school, three had been discharged, four had been transferred to other institutions, and four had died. Twelve of the 43 had, at least provisionally and at least at one time, been returned to their homes and communities.

There are at Southbury only two qualifications on the admissibility of "epileptic persons": Persons with definite psychoses or contagious diseases are prohibited in the chartering statute; practically, because of the long waiting list, there is also the informal qualification of relative urgency.

Public custodial institutions serve three general functions: (a) They provide continuous, often specialized training and care for those who need it and cannot otherwise receive it (the sanitorium, the special school for the handicapped, and the public hospital). (b) They provide the basic necessities of life for those who are not self- or otherwise-supported (the almshouse and the home for the aged). (c) They maintain and attempt to correct those whose presence elsewhere has been deemed intolerable (the prison, the reform school, and the detention home).

On the basis of its charter and its admission qualifications, the Southbury Training School serves in some degree each of these three kinds of functions in taking charge of certain retarded persons and epileptics.

In collecting the data on reasons for admission requests, this basic three-

fold classification was employed. As subcategories, the first included medical treatment and training. The second category, economic dependency, was broken down into (a) dependency of children due to loss, breakup or other nonsupport of family; (b) actual impossibility of employment due to frequency and severity of seizures; (c) dependency due to other physical handicaps; and (d) dependency due to psychological inability to take or keep employment. All of these conditions imply the absence of private or family support. In the third category, "disturbances" for short, behavior problems in the home (including foster homes) are distinguished from "disturbances" in the community (including other institutions). As there were several cases in which seizures as such were said to be too disturbing for the family or beyond their ability to manage, these form a somewhat different third type of disturbance. This scheme was used in the recording of possible contributing factors, for stated reasons, and for previous institutionalizations as well as admission to Southbury.

Other information recorded in each case included sex, ages at admission, lengths of periods in institutions, mental classification, type, relative frequency and severity of seizures, estimate of control over seizures, personality description, and notes relating to possible rejection or overprotection among parents and surrogates. The individual case folders in the institution's main files were the sources for all data, including reasons for commitment.

3. General Characteristics of the Group

As of the last monthly census before the collection of data was begun, the total population of the training school was 1714, including 266 on placement. Of the total, some 295, or 17.2 per cent, were epileptic cases. The 32 active nonretarded cases therefore constituted 10.8 per cent of the epileptics in the institution and 1.9 per cent of the total population.

In the total nonretarded epileptic group (including the 11 cases no longer active) there were 23 males and 20 females. Ages at admission to Southbury ranged from 5 to 64 years, the median age for males being 19, that for females being 27. An interesting item turns up in the age data: not only were ages at *first* institutionalization lower for those who had been previously institutionalized than for those whose first commitment was to Southbury, but this difference was remarkably greater for the males than for the females. Boys sent first to other types of institutions were generally younger on first institutionalization and at admission to Southbury than were girls in comparable situations. There was no such difference (in fact a slight reverse tendency) between males and females whose commitment to

Southbury was their first. Another finding with relation to age was that for the 12 cases placed or discharged from the institution, the highest age at admission was 28, the mean 16.1 years, and the median only 15.5 years. This suggests that the rehabilitation of older epileptics is probably more difficult.

In 24 of the 43 cases studied there had been at least one previous institutionalization not of the Southbury type and not including foster home placement. These were mental hospitals, reform schools, orphanages, schools for the deaf and blind, almshouses, and the like. In many cases requests for admissions to Southbury came directly from such institutions.

The Binet, forms L and M, and the Wechsler Bellevue Intelligence Scale for adolescents and adults, forms 1 and 2, were routinely administered depending on the age of the individual being tested. In terms of intelligence quotients the "nonretarded" label is applicable to anyone with a measured *IQ* in the mid-seventies or higher. The subclassifications used at Southbury follow one scheme⁴ shown in Table 1 along with the group's mental

TABLE 1
CLASSIFICATION OF INTELLIGENCE QUOTIENTS AND THE DISTRIBUTION OF THE 43 CASES
IN EACH BY SEX

Mental classification	<i>IQ</i> Range		Number of cases ^a		Total
			Males	Females	
Retarded (idiots, imbeciles, morons)	below 70		0	0	0
Borderline (nonretarded)	70-79		5	5	10
Dull Normal	80-89		8	6	14
Normal	90-109		4	9	13
Superior	110-119		4	0	4
Very Superior and Genius	above 119		1	0	1
			22	20	42

^a There was one male subject who was unclassified (deaf and dumb).

classifications. The seeming male monopoly on mental superiority is probably a spurious finding. In any case, no interpretation can be offered here. It is clear, however, that epileptic intelligence has variability even within this institutionalized subgroup.

In all but a few of the 43 cases the convulsive disorders were diagnosed as idiopathic. In the case of one boy both the convulsive condition and a behavior disorder were diagnosed as of postencephalitic etiology (13). There

⁴ Adapted from F. S. Freeman, *Individual Differences*, New York: Henry Holt, 1934, pp. 24-25.

was a middle-aged man with definite brain injury who suffered a right hemiplegia and speech defect as well as convulsions. In two other cases postnatal injuries might have been involved. These four were the only cases not diagnosed as idiopathic.

In all but one case the epileptic group had suffered grand mal attacks, although many of them were also subject to petit mal spells. Frequencies of seizures before admission appeared to vary widely. While in the majority of cases seizures had been relatively frequent, in others petit mals were frequent but grand mals infrequent, or attacks were simply "irregular" or "occasional." In one case successful drug control had been established for two years prior to admission. In another, attacks had for years been rare (about two per cent) and had only occurred during sleep.

It was reported that the nonretarded epileptics often go through a period of increased seizure frequency on first entering the institution, which was attributed primarily to the special adjustment required of the nonretarded placed among the retarded. The information in the files indicated that anti-convulsive therapy at Southbury has been quite successful. As expected, the number of severe cases in which very good control has been established are few. But more important, the number of cases in which the therapeutic program has been notably unsuccessful are also few.

Descriptions of personalities ranged from pleasant and entirely adequate to psychopathic and near-psychotic. The major descriptive categories involved and the incidences of such descriptions are as follows: Unclassified (no information) 1; Organic behavior disorder, 1; Organic psychosis, 1; Psychopathic personality, 2; Functional psychotic tendencies, 8; Psychoneurotic disturbance, 16; and No personality problem, 14.

D. RESULTS

1. General

There were no apparent relationships between personality classifications and age, sex, epileptic condition, or control of seizures. However, of the 12 individuals who had been discharged or placed outside the institution, seven had had no reported personality problem, four were only neurotic, and the twelfth was the case of a hypertensive child with ideas of persecution whose parents were emotionally unable to leave him in the institution and requested his return. Of the four individuals who had been transferred to other institutions, three had gone to a state hospital as psychotics; the fourth, a remarkably adequate young man, hydrocephalic and totally blind, was transferred to a school for the blind. Of the three psychotic cases, specifically

psychotic tendencies have been reported earlier at Southbury in one instance.

The attempt to note what might be evidence of rejection and overprotection in the records indicated not only the impossibility of getting such data from routine case materials but the difficulty one might have—with the most ideal materials—in operationally defining these terms. While it was impossible under the circumstances to isolate any behavioral correlates of rejection or overprotection, there were in all but a few cases indications *either* of a rejective-protective problem *or* of family instability, or both.

2. Reasons for Commitment

The three broad categories of reasons for commitment—positive treatment and training, dependency, and disturbance in the home or community—comprise seven possible combinations. That is, before breaking down these categories they form seven possible patterns of reasons. These patterns of stated reasons are given showing (and in the order of) their incidences for the 43 cases: Social disturbance only, 17; Treatment-training only, 9; Treatment-training and disturbance, 8; Treatment-training and dependency, 4; Dependency only, 3; Treatment-training, disturbance and dependency, 2; and Disturbance and dependency, 0.

The disturbance factor was explicitly involved in 27 cases, 63 per cent of all cases. The treatment-training factor was mentioned in 23 cases, or 53 per cent of all cases. Dependency was given as a reason in a total of nine cases, 21 per cent of all cases.

The data on factors undoubtedly contributing but not stated as *reasons* for commitment further emphasize the predominance of social disturbance as a determining factor in the institutionalization of this group. Of the 20 cases in which such additional factors were discerned, 11 involved evidence of reactions to social disturbance, six involved evidence of dependency, two involved evidence that treatment or training was desired, and one involved evidence of both dependency and the desire for medical treatment. Where dependency factors were not stated in the reasons for commitment it was generally because the handicapping condition was known and the resultant dependency taken for granted. In the psychologically-dependent cases the reason was apparently that the condition was unlabelled and unsought-for by those concerned with the case.

Following up the incidence of unstated disturbance reasons, the inspection of relevant cases disclosed a tendency on the part of some parents to underplay the behavior problem aspects of their children's cases. In cases of admissions from other institutions no such tendency appeared: the institutions

were definite about the behavior problems involved. In contrast to the parental underplaying tendency with respect to behavior problems, it will be noted that treatment and training motives were seldom *not* explicit when they appeared at all. The difference reflects the culturally greater acceptability of positive, other-oriented motives than motives involving self-interest and possibly rejection.

Among the three general categories of reasons the relative incidences of the several combination patterns appear to be functions largely of the relative predominance of their *component* categories. One can place no special importance, for example, on the fact that no cases explicitly involved dependency and social disturbance as a combination since the number involving dependency at all was so small.

As for suggestive clusters among the *subcategories*, the finding is not surprising. The desire for medical care or for training and the existence of particular kinds of dependency have no inherent relations that a person found irascible or unmanageable or otherwise unpleasant in one setting might be found so in another. Among the cases involving social disturbances a higher than chance proportion (60 per cent) had involved disturbances in more than one setting (e.g., home, community, institutions, etc.).

The incidences of reasons, stated and inferred, for all subcategories are shown in Table 2. It will be seen that the desire for training as distinguished from medical treatment was relatively infrequently a contributing factor, that seizures slightly predominated as reasons for dependency, that while psychological dependency was never a stated factor, the dependency of children was never an *unstated* factor, and that behavior disturbances were about equally frequent in the home and in the community—both more frequent than disturbances caused by seizures.

TABLE 2
DISTRIBUTION OF REASONS FOR COMMITMENT, STATED AND UNSTATED, BY SUBCATEGORIES

Subcategories	Incidences of reasons	
	Stated	Unstated
Treatment	22	3
Training	6	0
Unsupported child	2	0
Seizure dependency	5	2
Other handicap dependency	2	3
Psychological dependency	0	3
Behavior problem in home	15	7
Behavior problem in community	12	8
Disturbance due to seizures	9	2

However we look at this group we find little in common besides epilepsy. Ages, level of functioning, physical conditions, personalities and backgrounds vary considerably. If there is anything in common, it appears to lie in the conditions leading to institutionalization: in almost every case, commitment served someone else's purpose as well as, if not rather than, the epileptic's. The apparent commonness of unstable emotional and social elements in the epileptics' backgrounds would seem to be related to this general finding.

E. DISCUSSION

In an article concerning the care of epileptic children in residential training schools, Dr. Herman Yannet, Medical Director of the Southbury Training School writes: ". . . the ultimate aim of institutionalization is to return as many children as possible to normal community living . . ." (15). He stresses the predominant role of psychogenic personality deviations in the commitment of epileptics and particularly of normal epileptics and argues that psychological rehabilitation is more essential even than drug therapy in the preparation of many epileptics for return to the community. It is especially important, he points out, that cottage parents, teachers, staff psychologists and others be aware of, and be able to satisfy the special needs of this group. Dr. Yannet strongly emphasizes that placing mentally normal epileptics in such institutions should be a last resort.

At Southbury it is considered the responsibility of all staff members to be placement-oriented and to note relevant changes in the condition, behavior and extra-institutional situation of each individual. Despite this and despite Dr. Yannet's insights, initial requests leading to placement outside the institution and discharge from it often came from the epileptics themselves or from their families, not from the staff.

With respect to efforts at psychological rehabilitation, some measures (supportive, "situational" therapy in crises, etc.) are taken quite regularly by staff psychologists, but intensive individual therapy is still very exceptional. Diagnostic testing, however, is routine.

Southbury has no special program for the nonretarded group; except on an individual basis the members are treated much as the retarded are. The nonretarded are dispersed in cottages with the retarded; they work, go to school and play with the retarded. If they do not "adjust" well (i.e., if they make trouble) in some aspect of their institutional life, they may be handled punitively as are the retarded and perhaps switched to another cottage, another job or another classroom—always with the retarded—in the hope that in the "new" situation a better adjustment will be forthcoming.

It is perhaps significant that while the letters "EP" are marked in red pencil on the outside of the folders of all epileptic cases, no special notation is made of the absence of mental defect. A nonretarded epileptic is more likely to be pointed out as a "seizure case" than as a normal; by many staff members he may even be mistakenly considered retarded. There is a natural tendency of staff members to lose sight of a difference characteristic of such a small fraction of the population and to generalize from the vast majority of the population to the total population. There is also a universal use of the terms "children," "kids," "boys," and "girls" when referring to the population in custody. For example, a 65-year-old, college-educated man of 128 IQ was referred to in reports as "this boy."

Given the present impossibility of denying admission to nonretarded epileptics and given the aim of returning as many as possible to noninstitutional life, it would seem more than desirable that a thorough study of nonretarded cases be made and a more ambitious program for their rehabilitation be inaugurated. A first step in any such effort must be the mere awareness that a nonretarded *is* nonretarded and that many of the ways in which one may be accustomed to behave toward "the kids" may be quite inappropriate with nonretarded epileptics. In fact, such behavior may defeat the rehabilitative purpose.

Our data support Dr. Yannet's statement that the psychological needs of the institutionalized nonretarded are likely to be more crucial than his medical needs. The data suggest also that the uppermost needs of some are neither psychological nor medical, but purely social and situational. If there are differences in the needs of the institutionalized retarded and nonretarded, they are likely to aggravate the problems of the nonretarded minority. No doubt for a considerably larger proportion of the retarded there is little or no hope of return to the community. To the extent that this is true it helps to explain and to justify the custodial (as opposed to rehabilitative) outlook of the staff and the associated induction of dependent tendencies. To the extent that it is not true it suggests that the problems raised here may apply to the retarded as well as to the normals.

There may be more specific deleterious results of institutionalizing normals with the retarded. However, the dependency problem and the loss of status due a mental normal appear to be fundamental.

In the problem presented in this paper, there are several groups involved with relevant needs or demands. First, outside of the institution there are the families, friends, neighbors, teachers, social workers, institutional personnel and others who have contact with the epileptic. Insofar as the epileptic has

become a behavior problem there is at least a *tendency*, however suppressed or rationalized, for this "community" group to reject the epileptic. Institutionalization of the nonretarded epileptic *can* serve such community needs and our data indicate that it most often does so.

Historical-cultural forces play a definite part in all this. That they are involved in the attitudes and behavior of families and communities toward epileptics need not be labored. To offset this, there are several organizations of interested citizens expending considerable time and money to educate the public about convulsive disorders (16). The mark of history on Southbury's charter is all too plain; caring for the retarded and nonretarded epileptics together is a legislative anachronism carried over from the days when a mental defect was considered a necessary accompaniment of epilepsy.

Southbury is an institution in the broader sociological sense as well as in the public welfare sense: it has a purpose, an organization, even a culture of its own, and it interacts with other institutions. Viewed functionally the institution's particular characteristics derive from its own history and its continuous adjustment to the needs of the social elements which have claims upon it. It may be seen as the result of a host of large and small compromises—compromises with the personal and group needs of its staff, with such external demands as financial economy, with the demands of parents and other institutions, and—especially significant for the nonretarded epileptics—with its formal charter. All of these groups and their needs, in addition to this legal condition on which they must operate, affect the life of the person committed.

Parts of the analysis above must be considered only suggestive because of the available evidence. More firmly established by the data is the predominance of Southbury's family-community service function, at least in non-retarded epileptic cases. Seldom is a normal epileptic admitted simply for treatment or training. Nor in cases of personality disturbance is its treatment the aim of institutionalization. In the vast majority of cases the function, if not the explicit purpose, of institutionalization is to solve or alleviate a family's, an institution's or a community's problem—within limits a legitimate function of public welfare institutions.

The performance of this function in *accepting* cases does not of itself preclude the *subsequent* performance of the patient-oriented rehabilitative function. It was shown and Dr. Yannet has testified, however, that other factors do make the rehabilitative function difficult. Thus, although officials of the training school may realize that it is not the place for the nonretarded and may resist their admission, these officials are faced with the epileptic loop-

hole in the institution's charter, family and public demands for admission, and the unhappy knowledge that other solutions for the individual might be even worse.

F. SUMMARY AND CONCLUSIONS

In terms of the 43 institutionalized, nonretarded epileptics studied in this paper, the following information resulted:

1. Intelligence, level of functioning, ages, backgrounds, frequencies of seizures and personalities varied widely even among this group of epileptics, lending support to the theory that there is no typical (6) epileptic.

2. There were no apparent relationships between personality classifications and age, sex, epileptic condition or control of seizures.

3. It was not possible to isolate any behavioral correlates of rejection or overprotection; there were in all but a few cases indications *either* of a rejective-protective problem *or* of family instability, or both.

4. Among the patterns of stated reasons given for the commitment of mentally normal epileptics to an institution for the retarded, the *disturbance* factor was explicitly involved in 27 cases or 63 per cent of all cases. The involved disturbances were in more than one setting, e.g., home, community, institution, etc., and did not involve disturbances caused by seizures, indicating a lack of understanding on the part of those with whom the epileptic came in contact.

5. In addition to the problem of epilepsy, another common denominator was in the conditions leading to institutionalization: in almost every case commitment served someone else's purpose as well as, if not rather than, the epileptic's.

6. The age for the commitment of male epilepsy subjects was earlier than that of female epileptics.

7. Rehabilitation of older epileptics is probably more difficult than that of younger ones, according to the age of those discharged as rehabilitated.

8. The psychological needs of the institutionalized nonretarded epileptic are likely to be more crucial than his medical needs although uppermost among the needs are social and situational ones.

9. Caring for the retarded and the normal epileptics together in one institution discourages rehabilitation and presents special problems, suggesting a direction for future corrective legislation.

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AUTHORITARIANISM AND MISOGYNY*

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A. INTRODUCTION AND PURPOSE

In a series of recent papers (2, 3, 4) MacKinnon and the writer have explored the relations of authoritarianism to other personality variables and presented some findings relating authoritarianism to ideological and international conflict. In general in these papers the notorious reactionariness of the authoritarian was confirmed. It has become increasingly evident that in almost any issue of attitude and opinion we may expect this type of personality to either reaffirm the *status quo* or seek to return us to some anachronous position. Frenkel-Brunswik (1) has already noted the tendency of the authoritarian, both male and female to "favor restricting women to narrowly defined fields of activity which are considered to be 'feminine,'" thus adhering to a position which may be viewed as both reactionary and misogynistic in terms of today's norms.

In the research reported here is an attempt to follow up the essentially interpretive and clinical data of Frenkel-Brunswik by a more objective and systematic type of observation designed to test the hypothesis that antipathetic attitudes toward women are linked to authoritarianism in a positive way. Examination of such an hypothesis is complicated, of course, by the possibility that attitudes toward women are a function of a great many variables other than authoritarian personality structure. Besides a host of other possible personality dynamics, one might expect to find biological and situational factors such as sex, age, race, socioeconomic status, educational achievement, and marital status linked to antifeminism to some degree. Data were collected with regard to as many of these variables as possible in order to ascertain the nature of the relationships.

B. METHODS AND MEASURES

In order to maximize the generality of whatever findings might eventuate from our observations, the method of choice in our study was a survey, wherein a cross section of the adult population of metropolitan Los Angeles consisting of 750 persons was interviewed in person, and asked questions designed

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to reveal authoritarian tendencies, attitudes with regard to women, and certain vital facts concerning situation in life. Data on age, sex, marital status, social class identification, occupation, socioeconomic status, and race were obtained from either observation, interviewers rating or direct questioning.

As a measure of authoritarianism the scale devised by Sanford and Older (5) for the specific purpose of use in survey work was employed. This instrument consisted of the seven items which follow:

1. Human nature being what it is, there must always be war and conflict.
2. The most important thing a child should learn is obedience to his parents.
3. A few strong leaders could make this country better than all the laws and talk.
4. Most people who don't get ahead just don't have enough will power.
5. Women should stay out of politics.
6. People sometimes say that an insult to your honor should not be forgotten.
7. People can be trusted.

This Short Authoritarian-Equalitarian Scale, primarily derived from the F scale and previously used in both Philadelphia and Los Angeles surveys, required the respondent to indicate his degree of agreement or disagreement in terms of the following six categories of response: agree a little, agree pretty much, agree very much, disagree a little, disagree pretty much, disagree very much.

The score assigned to responses on each item varies from 1 to 6, 1 being assigned for extreme disagreement, and 6 for extreme agreement (except for the final item, which is reverse-scored). A respondent's score for the scale as a whole is simply an arithmetical average of his scores for the separate items.

Since a search at some length yielded no existing instrument for measuring attitudes toward women, it was necessary to construct a scale. This was done by the usual trial and error procedure of collating a large number of possible items and, by pretesting, eliminating those unsuitable for use in a survey, while retaining the most promising ones for this type of inquiry. Thus, the survey as actually conducted included a total of 25 questions designed to reveal misogynous attitudes. Later analysis led to the eliminating of 13 of these because of their lack of suitable intercorrelation, so that a final set of 12 positively intercorrelated items remained to constitute the final scale. Since this is the initial publication concerning the scale, the items are

reproduced here. Table 1 shows the magnitudes of their respective inter-correlations.

1. Do you approve or disapprove of women having the same educational advantages as men?
2. Which are more extravagant, men or women?
3. Which sex do you consider to be more practical, men or women?
4. Which do you think are more intelligent, men or women?
5. In planning for the future, which do you think do better, men or women?
6. In general, do you think women can do most things better than men, about as well as men, or not as well as men?
7. Do you approve or disapprove of women holding any political office men can hold?
8. For a "spoiled child" which parent do you think is more often to blame, the father or the mother?
9. Do you approve or disapprove of married women having jobs and careers outside the home if they want them?
10. In factories and offices and other work situations, do you think women have the ability to supervise men?
11. Do you agree or disagree that women should be permitted to enter any kind of work for which they are fitted by training and experience? *
12. Do you think the position and treatment of women in our country is better, about as good as, or poorer than that of men?

In scoring on the above items an answer favoring women was assigned a weight of 1, an answer favoring men (or not favoring women) given a weight of 3, and a response indicating no favoritism was assigned a value of 2.

TABLE 1
INTERCORRELATIONS OF ITEMS INCLUDED IN THE SCALE
MEASURING ATTITUDES TOWARD WOMEN

Item number	1	2	3	4	5	6	7	8	9	10	11	12
1	—											
2	.01											
3	.24	.20										
4	.36	.07	.12									
5	.06	.13	.23	.15								
6	.21	.11	.12	.17	.08							
7	.60	.07	.09	.15	.05	.20						
8	.18	.07	.16	.13	.11	.05	.15					
9	.44	.05	.01	.06	.02	.19	.31	.00				
10	.11	.03	.12	.10	.17	.21	.22	.03	.15			
11	.22	.07	.16	.32	.15	.35	.47	.18	.45	.28		
12	.22	.10	.01	.15	.02	.17	.13	.05	.10	.14	.19	—

The obtained scores ranged from 14 to 34, with a mean of 22.74, being essentially normally distributed.

C. RESULTS

In assessing the relationship between scores on the authoritarianism scale and those on the ATWS (attitude toward women scale) a Pearson product moment coefficient of correlation was computed for the total sample. The resulting coefficient of .24, significant at well beyond the .01 level of confidence, definitely supports the hypothesis that the more authoritarian a person is in attitude the more he tends to be antifeminist in disposition.

This conclusion is greatly strengthened by the fact that further correlational analysis revealed that the obtained relationship was remarkably independent of sex differences in respondents. Specifically, a correlation of .23 was obtained for authoritarian and ATWS scores for the males in our sample whereas the correlation of authoritarianism and ATWS scores for females was .25. The difference is quite minor, but opposite in direction from what one would expect on the basis of assumed sex differences in attitude toward women. Both the latter correlations are significant at better than the .01 level.

In further analysis of results a comparison of mean scores on the ATWS was carried out for various groupings based on (a) age, (b) education, (c) race, (d) socioeconomic status, (e) social class identification, (f) marital status and (g) occupation. In no case was a significant difference between mean scores on the ATWS found. It would thus seem clear that the obtained correlation between authoritarianism and antifeminism is not an artifact of other confounding variables.

However, a still more rigorous examination of the relationship was undertaken. Here the procedure was to divide the sample into High and Low authoritarians in terms of the relation of scores to the mean, and then to contrast Highs and Lows for their scoring on the ATWS, holding age, education, race, etc. constant. That is, Highs and Lows within a given age group were contrasted for their scoring on the ATWS, Highs and Lows within a given educational level were compared for their scores on the ATWS, etc. Such contrasting of mean scores on the ATWS for Highs and Lows was carried out for each of the seven variables enumerated above. In all, this amounted to 21 comparisons with an average difference between the means of Highs and Lows amounting to 1.35, with a range of .56 to 2.01 points. In every case the High authoritarians were more antifeminist than the Low authoritarians, and in all but three comparisons the difference was significant.

at the .01 level of confidence or better. The three comparisons where the difference did not meet the .01 criterion were in each case ones where the *Ns* upon which the comparisons were based were very small.

D. SUMMARY

In a person-to-person interview survey carried out in greater Los Angeles wherein a cross section of 750 persons was given both an Authoritarian-Equalitarian Scale and a scale designed to measure attitudes toward women, an attempt was made to test the hypothesis that persons of more authoritarian personality structure will tend to manifest antipathy to women's having equality with men.

A Pearson product moment coefficient of .24 resulted for scores on the two scales, which was clearly supportive to the hypothesis. Extended analysis of the data indicated that factors such as age, education, race, socioeconomic status, social class identification, marital status and occupation did not significantly contribute to the relationship and that authoritarianism was itself the only significant correlate of variations in antifeminism scores.

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MULTIPLE REGRESSION IN THE EXPLANATION OF SOCIAL STRUCTURE*¹

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A. PURPOSE

In the study of interpersonal relations there are three fundamental problems of method. First, there is measurement. What kinds of questions best elicit the basic data? How can the essential variables be represented numerically? Second, there is summarization. What analytic devices best organize and display each variable making clear its essential nature and its inner structure? Third, there is explanation. How can the variables of central interest be most effectively related to the matrix of causes presumed to explain them?

In a recent issue of *Sociometry* (3) the use of Q-technique to deal with the problem of measurement and direct factor analysis to deal with the problem of summarization is illustrated. These methods provide a meaningful picture of the social structure within groups. However, they do not, of themselves, deal thoroughly enough with the problem of explanation. The development of a science of social behavior depends on finding methods by which the influence of background variables on patterns of interaction can be specified. What is needed is an objective way to assess relationships between the existing social structure and forces thought to influence it. The relevant question is, "How can the network of relations among variables be specified in an objective and reproducible manner?" Only through such a specification is it possible objectively to evaluate inferences about the causes of social behavior.

B. METHOD

This paper illustrates the use of multiple regression to deal with the problem of explanation in sociometry. The measurement of social structure was accomplished by asking group members to rank their companions on the social choice variables of interest. Summarization was accomplished by writing these scores in a square matrix for each variable with choosers as rows, and chosens as columns, reducing each matrix to its largest principal compo-

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nents, and plotting these components in pairs to display their structure. Finally, explanation was accomplished by writing the scores for each variable in vectors of pair-wise mutual and one-way individual choice scores and regressing the social choice variables to be explained on the background variables proposed to explain them.

C. ILLUSTRATION

The data with which application of this method is illustrated come from a class of 15 young women between the ages of 21 and 23 in the fourth year of a university program in nursing. The problem was to measure, summarize, and explain the social structure of this group. In particular, the problem was to specify the influence of background "explanatory" variables on the social structure observed.

To measure social structure, each woman was asked to rank her 14 classmates on four social choice questions. For social contact the questions were: "With whom do you spend the most time?" and "Whom do you know best?" For social attitude they were: "Whom do you like the best?" and "Who do you think is the most friendly?"

Background variables through which the social structure might be explained were obtained by noting the social membership characteristics of the group and asking each woman to rank her classmates on two social attributes, "Who is the most beautiful?" and "Who is the most brainy?"

The membership characteristics of these young women are summarized in Table 1. There it can be seen that in class they were divided about evenly into two working subgroups; that 11 of them lived in the dormitory while four lived at home; that 11 are Protestant, three Catholic, and one Jewish; and that 13 are white, one Negro, and one Oriental.

To summarize the social structure data and to evaluate the attribute status of the "brains" and "beauty" question, rankings for each of the six choice variables were written in the form of a 15-square matrix of scores ranging from one to fourteen. The self-choice diagonals were completed with an innocuous middle rank of seven. Each matrix was centered on the mean score of 7.5 and its largest principal components were computed. The extent to which these components captured the variance of each variable is summarized in Table 2.

Table 2 shows that the "brains" and "beauty" data, although obtained as personal opinions, have the unidimensional structural properties of objective attributes, namely, one large principal component (1). This

TABLE 1
MEMBERSHIP CHARACTERISTICS OF THE CLASS OF 15 WOMEN STUDENTS

Student number	Classroom group	Residence	Religion	Race
1	B	Dormitory	Protestant	White
2	B	Dormitory	Catholic	White
3	A	Dormitory	Protestant	White
4	B	Home	Protestant	White
5*	A	Dormitory	Protestant	White
6	A	Dormitory	Protestant	White
7	B	Dormitory	Protestant	Oriental
8	B	Dormitory	Protestant	White
9	A	Home	Protestant	Negro
10	A	Dormitory	Protestant	White
11	B	Dormitory	Protestant	White
12	A	Dormitory	Protestant	White
13	A	Dormitory	Catholic	White
14	B	Home	Catholic	White
15	A	Home	Jewish	White

Note: Data collected during the spring of 1960. These women students were then between 21 and 23 years of age and in their last quarter of a four-year university program in nursing.

Class group membership was scored 0 for Group A and 1 for Group B. Residence was scored 0 for Dormitory and 1 for Home. Religion was scored 0 for Protestant and 1 for Catholic or Jewish. Race was scored 0 for white and 1 for Oriental or Negro.

* Elected class president.

TABLE 2
PER CENT VARIANCE FACTORED INTO EACH OF THE THREE LARGEST PRINCIPAL COMPONENTS
FOR THE SIX CHOICE VARIABLE MATRICES

	Choice variable	First	Principal components Second	Third	Residual
Social attributes	Beauty	57	10	.09	24
	Brains	62	11	.07	20
Social contact	Spend time	48	22	10	20
	Know best	48	21	10	21
Social attitude	Like best	35	25	10	30
	Most friendly	35	24	10	31

Note: Based on the direct principal component factor analysis of 15-square choice matrices from a class of 15 female students. Each student ranked her classmates from 1 to 14 on each of the six variables. The self-choice diagonals were completed with the middle ranks of 7. Matrices were centered on the mean choice rank before factoring.

Because of the similar ranking structure of these data, the total variance for each variable is the same.

implies that the ranks received by each student reflect an objective quality or attribute of the student ranked rather than an idiosyncrasy of the ranker.

The social contact and attitude scores, however, are more complex. Two components are required to cover as much as 60 per cent of their variance, and their second largest components are substantial.

At this point a graphical analysis of the social structure was made by plotting the row and column elements of the social contact and attitude components two at a time to produce a set of principal component sociograms (3). These sociograms showed the effect of differential membership in the two class subgroups. They also suggested the influence of other background variables, but the relative strength of this influence was not specified. Although the structure of the group was satisfactorily displayed, the basis for an explanation of the structure was inadequate. In order to explain the social structure, a quantitative way to examine the influence of background variables on social choice was needed. To solve this problem multiple regression analysis (2) was applied to the data. This application is the methodological point of this paper.

The success of regression analysis with sociometric data depends on finding vector forms in which to write the data which effectively represent the phenomena of interest. There are two interesting ways this can be done. The data can be written in terms of the $n(n-1)$ element vectors of one-way individual choices, or in terms of the $n(n-2)/2$ element vectors of pair-wise mutual choices. Both methods represent the influence of social status on the scores. The difference between them is that the one-way choice vector is responsive to unreciprocated choice trends, but vulnerable to the disturbance of idiosyncratic choice asymmetries. The mutual choice vector, on the other hand, averages out all pair-wise asymmetry and thus emphasizes pair-wise closeness.

D. ANALYSIS OF MUTUAL CHOICES

For the first analysis presented here, the mutual choice vector form is used in order to free the explanation of social structure from asymmetric disturbances. For this analysis each variable was written in the form of a 105-element vector based on the 105 different pairs occurring in the group of 15 students.

For the six variables obtained by ranking, each vector element was constructed by adding the ranks the members of that pair accorded each other. Scores for the four social contact and attitude variables thus represent the social closeness of that pair. For example, if each pair member ranked the other one on a question, then they were as close as possible, and the vector element for that pair was two. But if, on the other hand, each ranked the other 14, then they were as far apart as possible, and their vector element was 28. Scores for the attributes of "brains" and "beauty," governed as

they were by objective properties of the person ranked, represent the combined "beauty" or "brains" of that pair.

For the membership variables two quite different but equally important pair characteristics were considered. First, there was the membership similarity of a pair on a given variable. Were they of the same or of different religion, for example? Second, there was membership in a majority category. To what extent did the pair share in a majority membership for this group, such as dorm residence or Protestant religion?

Membership similarity was scored zero for same membership and one for different membership. Majority membership was scored zero if both members of a pair were majority members, one if one was, and two if neither was.

In this way a matrix of independent variables made up of ten 105-element vectors was composed, one vector for each of the pair attributes—"brains" and "beauty"; one for each of the pair membership similarities—class group, residence, religion and race; and one for each of the pair majority memberships—class group A, dormitory residence, Protestant, and white.

This 10×105 matrix of independent variables represented the proposed causes of social choice closeness. Each of the four social choice vectors was regressed on this matrix of putative causes. The resulting standard partial regression coefficients are given in Table 3.

In Table 3 the relative influence of each of the 10 possible causes of

TABLE 3
THE PARTIAL REGRESSION COEFFICIENTS OVER MUTUAL CHOICE PAIRS OF SOCIAL CHOICE
CLOSENESS ON SOCIAL ATTRIBUTES, MEMBERSHIP SIMILARITIES,
AND MAJORITY MEMBERSHIPS

Social choice closeness	Social attributes			
	Beauty		Brains	
	b	s	b	s
Spend time	.283	.069	.256	.069
Know best	.343	.076	.309	.076
Like best	.574	.082	.361	.082
Most friendly	.581	.085	.320	.085

TABLE 3 (*continued*)

Membership similarities							
Class group b	Residence b	Religion		Race		b	s
		b	s	b	s		
.600	.061	.368	.076	.035	.075	-.155	.139
.526	.068	.152	.084	-.024	.083	-.218	.154
.287	.073	.136	.090	-.013	.090	-.099	.166
.231	.076	.129	.093	-.098	.092	-.219	.171

TABLE 3 (*continued*)

Majority memberships									
Group A		Dorm. res.		Protestant		White		Multiple	correlation
b	s	b	s	b	s	b	s		
.026	.063	-.035	.080	.088	.086	.086	.139	.84	
.073	.070	.109	.092	.147	.095	.129	.154	.80	
.232	.076	.068	.098	.122	.103	-.021	.165	.76	
.278	.078	.076	.107	.113	.106	.096	.171	.74	

Note: b = the standard partial regression coefficient of pair choice closeness on pair attributes, membership similarities and majority memberships. s = the standard deviation of b with 4 df if subjects are taken as independent and 94 df if choice pairs are.

Based on $15 \times 14/2 = 105$ mutual choice pairs in a class of 15 female students.

Pair Closeness and Attributes scored by adding mutual choice ranks of pair.

Pair Similarities of Membership scored 0 if same and 1 if different.

Pair Memberships scored 0 if both in majority category, 1 if one, 2 if neither.

social choice closeness can be surveyed. The fact that these regression coefficients are partial means that the unique influence of each variable can be examined after covariation with the nine others has been adjusted for—that is, in circumstances under which the observed collinear effects of the other influences on social structure have been removed. The fact that the coefficients have been standardized means that they can be compared from variable to variable and the relative influence of each possible cause evaluated.

The regression coefficients in Table 3 represent a massive simplification of the original data. They also focus attention on those relationships fundamental to explaining social structure. Even so, Table 3 is too complicated to take in as a whole. A method for representing the data in Table 3 so that the relative influence of all 10 possible causes of social structure can be grasped at a glance is needed. If the four social choice variables could be simplified into two meaningful factors, the data in Table 3 could be represented in the form of a graph based on these two factors. Such a graph would furnish an overall picture of relative influence.

The pattern of regression coefficients in Table 3 is consistent with a simplification of the four social choice variables into the two factors of original interest—namely, social contact, made up of "spend time" and "know best," and social attitude, made up of "like best" and "most friendly." The appropriateness of this simplification can be further investigated by examining the correlation structure over the 105 mutual choices among the four dependent variables. This correlation matrix is given in Table 4.

Table 4 shows that the correlation within the social contact and social attitude variables is greater than that between them. Simplification of the

TABLE 4
CORRELATIONS OVER MUTUAL CHOICE PAIRS AMONG SOCIAL CONTACT AND ATTITUDE VARIABLES

	Social contact		Social attitude
	Spend time	Know best	Like best
			Most friendly
Spend time		.92	.81
Know best			.84
Like best			
Most friendly			.88

Note: Based on the $15 \times 14/2 = 105$ mutual choice pairs in a class of 15 female students.

Pairs scored by adding the two mutual choice rankings within each pair.

data into a factor of social contact and a factor of social attitude is supported by this pattern of correlations.

Therefore, a factor of social contact was constructed by averaging the regression coefficients of "spend time" and "know best" and a factor of social attitude was constructed by averaging the regression coefficients of "like best" and "most friendly." Using these two factors of social choice closeness as axes, the 10 explanatory variables were plotted by locating each one on the basis of its average influence on each factor of social choice. The resulting plot is given in Figure 1. There the relative influence on social contact and social attitude of all 10 explanatory variables can be examined at one time.

The picture in Figure 1 is organized by an equiangular line between the two axes. This line marks the locus of equal regression. The nearer an explanatory variable falls to this line, the more nearly equal are the regressions of social contact and social attitude on that variable. Thus, this line can be used as a point of departure from which to see the differential influence of attributes and memberships on social contact and social attitude.

Beginning with the four most salient explanatory variables in Figure 1, it can be seen that the attributes of "brains" and "beauty," while influential on both social contact and social attitude, fall on the attitude side. This is particularly true for "beauty" which is nearly twice as influential on social attitude as it is on social contact. In contrast, memberships in the same class group or residence, while also influential on both social variables, fall on the social contact side. Thus, in this group of women, "brains" and "beauty" are more influential on social attitude while similarity of class group and residence are more influential on social contact.

With respect to the less salient background variables in Figure 1, it can be seen that similarity of race has a slight negative influence on mutual

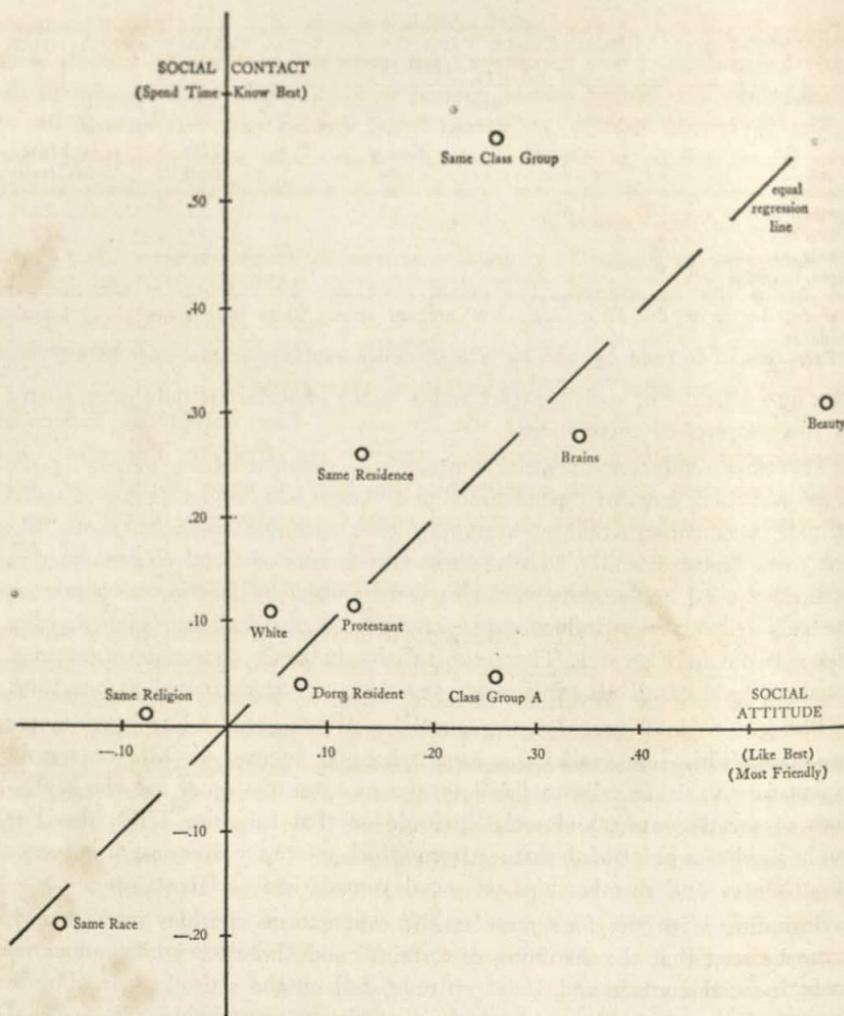


FIGURE 1
THE DIFFERENTIAL INFLUENCE OF ATTRIBUTES AND MEMBERSHIPS ON SOCIAL CONTACT
AND SOCIAL ATTITUDE
(Data from Table 3)

social choice. At first this is surprising since in general racial similarity has a positive influence on social closeness. But in this case the data follow from a specificity of this particular group of women.

The two nonwhite women in this group, one a Negro and the other an

Oriental, are not of the same race even though they were scored similarly for this analysis. More important, they were not particularly friendly with each other. The Negro woman roomed with one of the white women in the group for several months, and the Oriental woman was rooming with one of the white women at the time of this study. The social choices of these women were indeed cross-race, and so the regressions of social choice on race similarity in this class must be negative.

Returning to Figure 1, it can also be seen that membership in class group A has a specific influence on social attitude. This group is identified in Table 3 and Figure 1 as more likeable than group B. Again, this finding was supported this time by the reports of teachers. Group A was characterized as being "more open" and "less exclusive" than group B.

Figure 1 also shows that the remaining four potentially influential explanatory variables, the majority memberships of white, Protestant, and dorm residence, and the membership similarity of same religion had only relatively modest influence on mutual social choice closeness in this group.

E. ANALYSIS OF INDIVIDUAL CHOICES

The data in Table 3 are based on the analysis of mutual choice vectors. These symmetrically constructed vectors lead to the simplest and perhaps clearest picture of the causes of social closeness because they suppress the influence of unreciprocated choices by averaging out pair-wise differences in mutual ranking. But the asymmetry produced by disagreements in mutual rankings, that is by unreciprocated choices, also forms an interesting and important aspect of the class social structure. This is particularly true if the asymmetry forms a trend throughout the group. The "regression" method of explanation can also be applied to an analysis of this asymmetry. This is accomplished by performing an analysis identical to the one just described, except that the data are expressed in the form of 210-element vectors of one-way individual choices.

What can be expected from this second analysis? If there are no asymmetries, the regression coefficients and multiple correlations will be identical with those of the mutual choice analysis given in Table 3. If, however, there are asymmetries which are largely idiosyncratic—representing individual disagreements in mutual ranking—the result will be an overall attenuation of regression coefficients and multiple correlations. Finally, if there is a genuine asymmetric trend in the group social structure—a current of unreciprocated choices moving in the same direction for many group members—then the

regression coefficients on explanatory variables associated with that asymmetric trend will exceed their counterparts in Table 3.

The analysis of asymmetry in individual choices is accomplished against the background of the mutual choice picture. Two questions guide this analysis: First, is there evidence of an asymmetric trend marked by coefficients which exceed their mutual choice counterparts? Second, is there evidence of idiosyncratic asymmetries marked by a relative attenuation of the regression and multiple correlation coefficients?

In order to implement this second analysis each variable was written in the form of a 210-element vector based on the 210 different one-way choices in the group of 15 students. For the six variables obtained by ranking, each vector element was the rank assigned by the chooser to the chosen. Membership similarities were scored as before, with zero for same membership and one for different. Majority memberships, however, were those of the chosen, using zero if she was in a majority category and one if not. The regressions of social contact and social attitude on this 10×210 matrix of explanatory variables are given in Table 5.

In Table 5 the only coefficients which exceed their counterparts in Table 3 are those due to the majority membership of dormitory residence. The increase is greatest for the social contact variables of "spend time" and "know best," and is fairly substantial. If the correlation of about 0.8 between mutual and individual choices is taken into account, the standard error

TABLE 5
THE PARTIAL REGRESSION COEFFICIENTS OVER INDIVIDUAL CHOICES OF SOCIAL CHOICE STATUS ON ATTRIBUTES, MEMBERSHIP SIMILARITIES, AND MAJORITY MEMBERSHIPS

Social choice status	Social attributes			
	Beauty		Brains	
	b	s	b	s
Spend time	.232	.053	.245	.053
Know best	.282	.057	.262	.056
Like best	.462	.064	.270	.063
Most friendly	.434	.066	.201	.065

TABLE 5 (*continued*)

Membership similarities							
Class group		Residence		Religion		Race	
b	s	b	s	b	s	b	s
.568	.046	.262	.049	.001	.050	—.064	.057
.520	.049	.128	.053	—.024	.053	—.063	.061
.288	.055	.102	.060	—.011	.060	—.026	.069
.227	.058	.101	.061	—.065	.062	—.057	.070

TABLE 5 (continued)

Majority memberships									
Group A		Dorm. res.		Protestant		White		Multiple correlation	
b	s	b	s	b	s	b	s		
.023	.050	.167	.057	.084	.059	-.004	.060	.78	
.065	.053	.227	.060	.098	.063	-.009	.064	.75	
.203	.059	.173	.068	.042	.071	-.069	.072	.66	
.254	.061	.154	.070	.007	.073	-.033	.075	.63	

Note: b = the standard partial regression coefficient of choice status on attributes, membership similarities and majority memberships. s = the standard deviation of b with 4 df if subjects are taken as independent and 184 df if choices are.

Based on $15 \times 14 = 210$ individual choices among a class of 15 female students. Choice Status and Attributes scored by the rank assigned by chooser to chosen. Membership Similarities of chosen and chooser scored 0 for same, 1 for different. Memberships of chosen scored 0 for majority category and 1 for other.

of the difference between the counterpart dormitory residence coefficients in Tables 3 and 5 is of the order of .05, while the increases in influence of dormitory residence on "know best" is .12, and on "spend time" is .20.

Thus, there is a substantial asymmetric choice trend toward those who reside in the dormitory. The four women who live at home rank dormitory residents higher than they themselves are ranked on the question of social contact. The dormitory emerges as a focus of social choices.

Turning to the second guiding question concerning attenuation, attenuation due to idiosyncratic asymmetries is evident in all four social choice variables in Table 5. The decrease in counterpart squared multiple correlations from Table 3 to Table 5, that is the loss of "explained" variance in the dependent variable, can be used as an index of this attenuation. Comparing Tables 3 and 5, it can be seen that attenuation is greatest for the two variables of social attitude. This is just what might be expected. There is more leeway for pair-wise disagreement in ranking for the attitude variables, "like best" and "most friendly," than there is in ranking for social contact. The difference in attenuations reflects this.

F. SUMMARY AND CONCLUSIONS

Multiple regression analysis of pair-wise mutual choices has specified the relative influence of eight membership variables and two attributes on the patterns of social attitude and contact closeness in a class of 15 young women. Social attitude closeness was most influenced by "brains" and "beauty" while social contact closeness was most influenced by similar class group and residence.

Analysis of one-way individual choices, when superimposed on the analysis

of mutual choices, identified an asymmetric trend characterized by a current of choices toward dormitory residents and the presence of more individual pair-wise ranking disagreements in social attitude than in social contact.

Thus, multiple regression analysis of mutual and individual choices can be used in sociometry to sharpen and objectify the explanation of social structure. The size and specificity of this one group inhibit generalization. But when influences on social behavior are specified in this way, the explicit comparison of many groups becomes possible. A series of such studies would provide an objective basis for generalization, and hence for enduring theories of social behavior.

The challenge facing social scientists today is how to move from descriptive studies to the explanation and prediction of behavior. Only when the network of relations among essential variables can be specified will it be possible to evaluate constructively inferences about the causal structure of interpersonal relations. Only as such objective good judgment is achieved will solid progress be made toward understanding human behavior.

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MOOD, PERCEIVED SIMILARITY, AND THE JUDGEMENT OF THE MOOD OF OTHERS*¹

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A. INTRODUCTION AND HYPOTHESES

Increasing attention has been given in recent years to the individual's tendency to strive toward self-consistency and to reduce cognitive imbalance (3, 5, 11). The primary purpose of the present experiment was to investigate how tendencies toward cognitive balance affect the judgements of salient aspects of others. Specifically, interest was centered on how (a) the degree of perceived similarity between perceiver and perceived, and (b) the mood of the perceiver affect (c) the estimation of the mood of the perceived.

Several theorists have presented the view that the cognitive structure of an individual consists of an interdependent series of entities which tends to attain and maintain a state of equilibrium. The general notion is that the human organism tries to establish internal harmony, consistency or congruity among his opinions, attitudes, values, perceptions, and beliefs. Each theorist, employing different concepts to represent equilibrium states, has proposed theories regarding the dynamics of these processes. Osgood and Tannenbaum (11) have proposed the principle of congruity to account for the manner in which meanings interact when two different linguistic signs are paired. The congruity principle and the related notions of strain toward symmetry (8), the theory of cognitive dissonance (3), and the more recent work of Abelson and Rosenberg (1) on complex cognitive structures, all have their immediate antecedents in the work of Heider (5, 6). It was the aim of the present experiment to see if Heider's theory of cognitive balance could be used to predict how the perceived similarities between individuals, and the mood of the perceiver, affect the estimation of the mood of another.

The basic components of Heider's theory are entity (person or object) and relation. Relations between entities are of two types: sentiment and unit. The former refers to the way a person (P) feels about or evaluates an

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impersonal entity (X), or another individual (O). The latter exists when two or more entities are perceived as belonging together by virtue of such unit-forming characteristics as similarity or causality. The notion of balanced state, a situation in which the relations between entities co-exist without stress completes the core of Heider's balance theory. A three-entity system is defined as balanced if all three relations are positive or if two are negative and one positive. Heider's three general hypotheses are the following: (a) there is a tendency for cognitive units to achieve a balanced state; (b) if a balanced state does not exist, then forces toward this state will arise; (c) if a balanced state is not attained, then the state of imbalance will produce tension.

In the P-O-X triad in the present experiment, P represents the subject, O indicates the perceived person, and X represents a particular mood state. The subject was asked to evaluate what the mood of another individual O, not present at the experimental session, would be if O were actually there (O-X). The P-O relation refers to the degree of similarity that P perceives to exist between himself and O. The P-X relation is the extent to which P was in mood state X. All of the above relations are considered to be unit relations. The presence or absence of a unit relation will be indicated by U and notU. The use of X to represent a mood state, permitting mood to be symbolically linked with other aspects of a cognitive unit formation, has previously seemed fruitful in the analysis of the relation of mood to attitude structure (2).

The principal hypotheses were generated from Heider's assumption that there is a tendency toward balanced cognitive units. The first hypothesis states that whether or not a particular mood state is attributed to O is a function of the perceived similarity between P and O, and the mood that P is in. If the relations between entities P, O, and X tend toward a balanced state, then for a balanced state to occur when P U O and P U X, mood X must also be attributed to O and when P U O and P notU X, mood X must not be attributed to O. That is, similarity of mood state is expected where P is perceived as similar to O. For a balanced state to occur when P notU O and P U X, mood X must not be attributed to O, and when P notU O and P notU X, mood X must be attributed to O. That is, dissimilarity in perceived mood is expected where P is not similar to O. These conditions are particularly expected to exist when the stimulus conditions are, as in the present experiment, not partially structured by P's direct observation of O. After Heider's balance hypothesis was examined under one set of conditions, the mood state of P (the P-X relation) was experimentally manipulated. Heider's hypothesis

that imbalance will lead toward resolution was tested by investigating whether, when the P-O-X configuration was disturbed, the individual would re-establish a state of balance.

Experimentally the hypotheses are formulated as follows:

I. Prior to a mood changing communication, the *Ss'* rating of O's mood is a function of the unit relations between P and O and P and X. Explicitly, the discrepancy between P-X and O-X is less if P *U* O than if P *notU* O. That is, the relations between the elements in the system tend toward a balanced state.

II. After the P-X relation has been altered by the mood change conditions, the *Ss'* rating of O's mood is still a function of the unit relations between P and O and P and X. That is, if one relation in the system is changed, the others will change to reestablish a balanced state, and as a result the discrepancy between P-X and O-X is less if P *U* O than if P *notU* O.

B. METHOD

1. Overview

P was asked to rate both himself and O along a series of personality-descriptive scales. The size of the difference between the self and other ratings represented the perceived similarity between P and O. P was also asked to report both his own mood and how O would feel if he were also present. These two reports were used to obtain a difference score which represented a measure of the judged mood similarity of P and O. The ratings described above were obtained under two different mood conditions. The first *S* reports were obtained at the beginning of the experimental session after a short pleasant comedy was shown to the group of assembled subjects. The second *S* reports were obtained after the presentation of a feature length film selected to induce a mood change. Thus the hypothesis that similarities in mood are associated with the extent of perceived similarity between P and O was tested both before and after the mood change treatment.

2. Subjects

Three hundred and fifty-seven undergraduate men from nine fraternities at the University of Rochester constituted the *S* sample. The number of *Ss* obtained from each fraternity ranged from 22 to 40. Each fraternity was given one dollar for every *S* from the fraternity who participated.

3. Measurement of the Unit Relations

a. *Measurement of the P-O relation.* The degree of perceived similarity between P and O was determined by the distance between P's ratings of

himself and his ratings of O on a number of semantic differential (SD) scales relevant to the description of persons. The president of each fraternity was the stimulus person (O) for his fraternity group. The president was not present at the experimental sessions. Ss rated two phrases, "Right now I am" and "The president of your fraternity," each phrase against 11 seven-point scales representing the evaluative, potency, and activity dimensions of a hypothetical semantic space (10). The scales chosen to represent each dimension were as follows: Evaluative: complete-incomplete, graceful-awkward, important-unimportant, timely-untimely; Potency: large-small, contracted-expanded, hard-soft, thick-thin; Activity: excitable-calm, tight-loose, vibrant-still. P was requested to check the position on the scale which expressed the extent to which the phrase rated was related to the polar adjectives of each scale. Responses were scored on a one to seven scale. One represents a positive rating; seven a negative rating. The degree of perceived similarity (D) between P and O was computed by taking the square root of the sum of the squared differences between the mean factor scores of P and O over the three dimensions.

b. *Measurement of the P-X and O-X relations.* The instrument used to measure both self-report of mood (P-X) and P's report of O's mood (O-X) was the Mood Check List (MCL). Nowlis and Green (9) and Green and Nowlis (4) have analysed the domain of the verbal report of mood into eight relatively independent dimensions, seven of which have been independently validated.² The MCL used in the present study consisted of 20 adjectives that are suitable for people to use in describing their feelings or mood. The words chosen for the MCL were selected from among those with high factor loadings on the eight mood factors obtained by Green and Nowlis (4), which also tend to be stable under different mood conditions. The eight mood factors represented were aggression-hostility, concentration, deactivation, social affection, anxiety, depression, egotism, and pleasantness. Each seven-point mood scale was anchored at one end by the word "very" followed by the adjective (e.g., very sad), and at the other end by the phrase "not at all" followed by the adjective. For self-report of mood P was instructed to respond to each adjective on the list according to "how you feel now." To report on O's mood he was asked to "describe how the president of your fraternity would feel now, if he were here." Responses were scored on a one to seven scale. One indicates that the adjective is very descriptive of the individual's feelings; seven indicates that the adjective is not at all descriptive of his feelings. A score was obtained for each factor by averaging

² Borgatta, E. F. Personal communication. 1958.

the responses of the component adjectives. The algebraic difference between the mean scale score of P for each factor and the mean scale score for P's rating of O for the same factor was the measure of judged mood similarity.

4. *The Mood-Changing Communication*

Following the pattern of previous research (4, 9), motion pictures were used to induce mood change. Two motion pictures were used in this study. The first, "Lizzies of the Field," a short comedy about a road race among jalopies, served to provide an anchoring frame of reference within which Ss might make their initial estimates of O's mood.³ The second motion picture, the principal mood change treatment, was used to alter the mood of the Ss following the first administration of the instruments. This film, "Los Olvidados," presents the problem of juvenile delinquency in Mexico City in drama form.⁴ It was selected on the basis of the results of a pilot study conducted with 18 graduate students in the Department of Psychology. The pilot study indicated that the film was an effective stimulus for change in self-report of mood.

5. *Post-Experimental Inquiry*

After P had completed all of the experimental forms, he filled out an inventory containing the following two questions: (a) "How do you feel now that the experiment is over?" Responses were made on a seven-point scale anchored on the left by "settled" and on the right by "unsettled." (b) "Did you enjoy participating in this study?" Responses were made on a seven-point scale anchored on the ends by "very much" and "not at all." The responses to both of these items were scored similarly to the MCL. Since balance in the P-O-X structure is associated with lack of stress, it was felt that these questions might give a rough indication of the extent to which balance was achieved after the mood change treatment.

C. RESULTS

1. *Sample Characteristics Prior to the Mood Change Treatment*

Prior to the mood change treatment the results of sign tests⁵ indicated that there were significant differences between the mean ratings of P and O

³ "Lizzies of the Field," a ten minute silent film, was produced by Mack Sennet in 1927.

⁴ "Los Olvidados," directed by Luis Bunuel and photographed by Gabriel Figueroa, was produced in Mexico in 1951. It is 81 minutes in length and has English subtitles.

⁵ The significance of differences between characteristics of P and O on both

on five of the eight mood dimensions. P reported that O was higher on aggression, concentration, social affection, and pleasantness, and lower on deactivation.⁶ P also perceived O as significantly higher on the semantic differential evaluative, potency, and activity scales.

2. *Test of Hypothesis I*

The entire set of Ss was divided into three groups nearly equal in size on the basis of the semantic differential *D* score as determined from the ratings of P and O taken before the mood change treatment (pretreatment *D* score). The mean pretreatment *D* was 3.27 for the Low Similarity (LS) Group ($n = 121$); 1.86 for the Medium Similarity (MS) Group ($n = 115$); and 1.20 for the High Similarity (HS) Group ($n = 121$). The results of chi-square tests indicated that each of the fraternities had approximately proportionate representation in each similarity category. A comparison among the three similarity groups by a median test of location (13) for each mood dimension indicated that there were no initial reliable differences in self-report of mood among the three groups.

The three groups were then compared for degree of mood similarity. The hypothesis that similarity in perceptions of both self and other is associated with judged similarities in mood between P and O was tested by the Kendall coefficient of concordance (12). The Kendall coefficient of concordance (*w*) is a combined index of the relationship among *k* sets of rankings and indicates whether or not the rankings are random. The mean difference scores were ranked separately for each mood dimension (Table 1). The hypothesis was supported; the ranked size of the P-O differences in mood varied among groups as predicted. The LS group showed the largest mood difference, and the HS group the smallest ($w = .40$, $p < .05$).

3. *Treatment Effects*

P's self-report after the mood change treatment demonstrated that the treatment condition was effective in producing change in the P-X relation. There were significant increases in aggression, concentration, deactivation, anxiety, and depression; significant decreases in social affection and pleasantness; and no significant change in egotism. Changes in P's report of

the MCL and SD data was tested by nonparametric analyses. Examination of the distributions and applications of the Kilmogorow-Smirnov one-sample test of goodness of fit to random samples of the data indicated that many of the distributions were nonnormal.

⁶ All sign tests were two-tailed. The .05 level was selected as evidence of a true difference. All group analyses reported as significant were less than the .01 level of confidence.

TABLE 1
MEAN MOOD DIFFERENCE SCORES BETWEEN P AND O PRIOR TO THE TREATMENT, AND
THEIR RANKED SIZE

Mood dimension	Similarity groups		
	High	Medium	Low
Aggression	.10 (2)	.00 (1)	.41 (3)
Concentration	.53 (1)	.85 (3)	.60 (2)
Deactivation	.63 (2)	.28 (1)	.69 (3)
Social affection	.21 (1.5)	.23 (2)	.21 (1.5)
Anxiety	.02 (1)	.03 (2)	.07 (3)
Depression	.23 (1)	.24 (2)	.37 (3)
Egotism	.08 (2)	.07 (1)	.54 (3)
Pleasantness	.34 (2)	.21 (1)	.44 (3)
Rj	12.5	13	21.5

Note: A rank of 1 indicates the smallest mean difference within the mood dimension, a rank of 3 the largest.

O's mood paralleled the changes in self-report of mood. Sign tests on the posttreatment data also indicated that there were significant differences between P's self-rating and his rating of O on four of the eight mood dimensions (O was higher on concentration, social affection, depression, and pleasantness).

After the treatment Ss rated themselves significantly lower on the evaluative dimension of the semantic differential scales, and significantly higher on the potency and activity dimensions than the corresponding pretreatment ratings. P also rated O significantly lower on the evaluative dimension, and significantly higher on the activity dimension on the posttreatment data than on the corresponding pretreatment rating of O, but there was no significant difference in the rating for potency. Sign tests on the posttreatment data also indicated that there were significant differences between P's self-rating and his rating of O on the evaluative dimension of the semantic differential (O was higher). Both P and O decreased significantly on evaluation after the treatment, but the difference between P and O was still significant.

A sign test comparing each S's semantic differential pretreatment *D* with his posttreatment *D* indicated that there was a significant decrease in the size of the score following the mood change treatment, demonstrating that P tended to rate himself as more similar to O after the motion picture. The mean of the semantic differential *D* score on the pretreatment data was 2.11; for the posttest data, 1.81.

The mean mood difference between P and O over all mood dimensions was significantly less after the mood change treatment than before, as determined by a sign test applied to the mood data. The overall mean mood difference before the treatment was .34; after the treatment it was .25.

4. Test of Hypothesis II

Hypothesis II was tested in two ways. In the major analysis the entire set of *Ss* was again divided into three groups. The division was made on the basis of the posttreatment semantic differential *D* score. The class interval structure of the division made prior to the treatment was followed. In this analysis, each similarity group did not necessarily contain the same subjects after the treatment as the corresponding group before the treatment. Since P-O as well as O-X was changed by the film it was necessary to recompose the groups to constitute the three similarity groups. A second analysis was performed on the posttreatment mood data with the intact pretreatment similarity groups.

In the major analysis, the mean posttreatment *D* was 3.34 for the LS group (*n* = 94), 1.80 for the MS group (*n* = 108), and .89 for the HS group (*n* = 155). The posttreatment means for the MS and LS groups are comparable to the corresponding pretreatment means. The posttreatment mean *D* for the HS group is considerably smaller than the mean of the pretreatment LS group.

The balance hypothesis was again tested by the Kendall coefficient of concordance. The results of the test did not support the hypothesis (*w* = .02, *p* > .05); the ranked size of the P-O differences in mood did not vary among the three groups as predicted. The mean difference scores between the mood of P and O on each mood dimension and the ranked size of the difference within each mood dimension for the three similarity groups are shown in Table 2.

Hypothesis II was also tested using the pretreatment division into similarity groups. The mean posttreatment *D* score for the pretreatment LS group was

TABLE 2
MEAN MOOD DIFFERENCE SCORES BETWEEN P AND O AND THEIR RANKED SIZE, FOR THREE POSTTREATMENT SIMILARITY GROUPS

Mood dimension	Similarity groups		
	High	Medium	Low
Aggression	.06 (1)	.20 (3)	.19 (2)
Concentration	.68 (3)	.59 (1)	.67 (2)
Deactivation	.13 (1)	.19 (2)	.27 (3)
Social affection	.35 (2)	.13 (1)	.52 (3)
Anxiety	.08 (1)	.22 (3)	.11 (2)
Depression	.14 (3)	.08 (2)	.01 (1)
Egotism	.28 (3)	.16 (2)	.08 (1)
Pleasantness	.29 (3)	.25 (1)	.28 (2)
Rj	16	15	17

Note: A rank of 1 indicates the smallest mean difference within the mood dimension, a rank of 3 the largest.

2.07; for the MS group, 1.85; and for the HS group, 1.52. The Kendall coefficient of concordance applied to this data also failed to support Hypothesis II ($w = .28$, $p > .05$).

The results of a chi-square test demonstrated that there were no significant differences among similarity groups in response to the questionnaire item, "How do you feel now that the experiment is over?" ($\chi^2 = 4.17$, $df = 2$). The mean response to the item was 4.92 ($\sigma = 1.74$) indicating that in general Ss felt rather "unsettled" after the experiment was over.

There were no significant differences among similarity groups in response to the item "Did you enjoy participating in this study?" ($\chi^2 = .21$, $df = 2$). The mean response to this item was 4.28 ($\sigma = 1.95$) indicating that overall the treatment was not a particularly enjoyable experience.

D. DISCUSSION

1. *Hypotheses I and II*

The salient question raised by the postcommunication results is why the balance hypothesis should be supported by the pretreatment, but not by the posttreatment data. There can be no doubt that the motion picture was effective in producing change in the P-X relation. Significant changes ($p < .001$) occurred for all mood dimensions except egotism. However, the P-O-X trend did not change in a manner appropriate to maintaining a steady state. Several alternative explanations for the failure of Hypothesis II to be supported will be given.

It is possible that the data gathered after the mood change treatment does not satisfy the balance hypothesis because insufficient time was allowed between the mood change communication and the subjects' filling out the forms. This possibility is based on the assumption that the resolution of cognitive balance is not necessarily immediate, but rather a continuous process (3). If the forms had been filled out 10 or 15 minutes after the film, the results might have been more in keeping with the theory of balance. In support of this possibility, the mean response for the "Settled Scale" seems to indicate that the Ss were somewhat upset after the treatment. The responses of the subjects on several open-ended questions also seem to support the notion that the motion picture had a disrupting effect. The evidence presented seems to indicate that the posttreatment imbalance was accompanied by the tension that must exist, according to Heider, if a balanced state is not obtained.

An alternative explanation is that the situation in which the stimulus person was experimentally embedded may have been sufficiently intense that inferences about O's mood were almost entirely dependent on the situation,

with little reference to the person apart from the situation. That is, the perceived similarities between P and O, as measured by the semantic differential, may have had little to do with P's decisions about O. In response to a strong communication the subject's own mood state may define the reactions of a broad spectrum of people whom he might imagine in the same situation. Thus the problem arises concerning the limits within which the perceiver will subscribe to the probability of the existence of individual differences in response to an emotional stimulus. These limits may define the bounds within which reliable prediction may be made from the balance hypothesis. Some of the responses to the postexperimental inventory question "How did you decide what the mood of your fraternity president would be after the motion picture?" indicated that "after that, everyone should feel the same way." The significant decrease in the size of the overall mood difference between P and O also supports this alternative. The possibility that a very intense emotion-arousing stimulus may restrict the predictive usefulness of the balance hypothesis in person perception does not invalidate the hypothesis, but rather points to the need to consider the situation in which the relations occur.

Another tentative possibility is that the type of experience is a factor which should be considered in the analysis of the effect of the communication. Perhaps, in a society which places great stress on enjoyment and pleasure, people perceive greater variability in the reaction of others to pleasant events than to situations in which "the concepts of right and wrong are violated" and in which "a person's thought [is changed] from trivial to basic."⁷ The importance of experimental manipulation of situations in which the balance hypothesis is tested is clearly indicated.

2. Mood Evaluation and the Perception of Others

An unexpected phenomenon was noted in the data obtained prior to the mood change treatment in the analysis of mood differences between P and O within each similarity group on each mood dimension. The HS group perceived differences between P and O on mood dimensions generally considered "pleasant" while the LS group perceived differences on the mood dimensions generally considered "unpleasant." The HS group perceived O as significantly higher on pleasantness and social affection than P while the LS group saw no significant differences between P and O on these dimensions. The HS group perceived no significant differences between P and O on aggression and egotism, while the LS group viewed O as significantly more aggressive

⁷ Subject responses on an open-ended postexperimental inventory.

and more egotistic. There were fewer between-group mood differences on the posttreatment data.

A recent study analysing the relationship of mood and mood change to attitude structure (2) provided a measure of the value or desirability of each mood state. Axelrod obtained and ranked the average SD evaluation of nine mood factors on 11 evaluative scales. The rank of one indicated that the Ss valued being in a particular mood; a rank of nine that they did not value being in a particular mood. The rank value for the dimensions above were as follows: social affection, one; pleasantness, three; aggression, five; and egotism, nine. Application of Axelrod's findings to the pretreatment data revealed that individuals perceived similar others as differing significantly from themselves on the favorable mood dimensions, that is, on those dimensions whose average SD evaluation was high (one, three), and perceived no differences on dimensions rated relatively low (five, nine). On the other hand, Ss who perceive O as dissimilar saw no differences on the favorably ranked dimensions, but did see differences on the mood dimensions with an unfavorable rank value. The data suggest that the judgement of the mood states of others may vary with the value of the mood state as well as with the degree of perceived similarity between P and O. The finding is similar to those of Zimmer (14) with respect to the projection of traits. He found that personality characteristics acceptable to the subject were projected to liked stimulus persons while unacceptable characteristics were projected to disliked individuals. In the present study differences between similar individuals occurred for high value moods while differences between dissimilar individuals occurred for low value moods.

E. SUMMARY

The experiment investigated how (*a*) the degree of perceived similarity between the perceiver (P) and the perceived (O) and (*b*) the mood of the perceiver affects the individual's judgement of the mood of the perceived.

The hypotheses were developed from the assumption in Heider's theory of cognitive balance that there is a tendency toward balanced cognitive units. It was predicted that whether or not O, the stimulus person, is judged as being in a particular mood state X is a function of both the perceived similarity between P and O and the mood state of P. This hypothesis was tested both prior to and following an experimental treatment in which the mood of P, one relation in the cognitive unit, was changed by a communication.

The hypothesis was supported by the test prior to the mood change treatment; it was not supported by the posttreatment data.

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INDIVIDUAL AND GROUP PERFORMANCE UNDER REWARD AND FINE*

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A. PURPOSE

In a series of studies (2, 4, 6) developing out of the general theoretical approach to social power of Cartwright (1) and of French and Raven (3), the conformity of a person (P) to the attempted influence of another person (O) is demonstrated to be a function of two sets of forces acting on P. One force, the induction force, is directed towards P's conforming with O; whereas the other force, the resistance force, is directed opposite to conforming. O's power over P, whether it be based on reward, coercion, legitimacy, reference, or expertness, is seen to effect P's conformity by operating through these induction and resistance forces. Thus, for example, O's offer to reward P for conforming is seen to increase the induction force, while O's threat to punish P for nonconforming is seen to increase both the induction and the resistance force (6).

This statement of the theory of social power usually considers that the influencer, O, may be another person or a group; and one may assume that, similarly, the influencee, P, may be another person or a group (1). The previous work directly following this theoretical approach, however, has dealt with O and P as individuals. That is, with an individual O, using one of the French and Raven bases of power (3) to influence an individual P working by himself towards his own goal on a task. Given that either O or P—or both—may be a group rather than a single individual, it appeared to be of interest and theoretical relevance to test some aspects of the theory and previous research by expanding their focus to groups. Therefore, we attempted to reproduce as nearly as possible the conditions of the typical research in which there is an individual O attempting to influence an individual P who is working towards his own goal, but this time to consider an individual O attempting to influence an interdependent group of Ps who are working towards a group goal. Because much of the previous research had employed reward and coercion as the basis of O's power over P, it was decided that this study similarly would focus on these.

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Thus the following research was undertaken as an attempt to study the effects of reward and coercive power on both individuals working alone and groups of interdependent individuals.

In focusing our attention on the effects of reward and coercion on a single individual as well as these effects for a group—in the *same* experimental situation—we are able directly to compare these as motivators for conformity, and thus to see if the theory which is applicable for individual influencing individual can be directly expanded to the individual influencing the group.

B. METHODS

1. Subjects

One hundred and sixteen Coast Guard recruits stationed at the Coast Guard Base on Government Island, Oakland, California, were used as experimental subjects. All the *Ss* were male, varying in age from 17–23. All *Ss* were brought together four at a time to work either as independent individuals or as interdependent individuals in a group. As we did not wish any *Ss* within a given group to know one another prior to arriving for the experimental session, we selected new recruits from different companies on the base. In this way, we could be fairly certain that all *Ss* within a given small group were complete strangers.

2. Task

The task given to all *Ss* consisted of drawing a series of separate circles with a single dot in the middle between the lines of regularly ruled paper, for a series of 10-second trials or work periods. Once having been brought together in groups of four, the *Ss* were assigned to separate rooms for the actual work on the task. In these rooms, the *Ss* could neither see nor hear one another. By a random procedure which consisted of having each *S* select a playing card which they presented to *E*, *E* presumably selected a leader or job supervisor. It was this supervisor, presumably one of the original four, who evaluated their circle-drawing and offered them rewards or threatened fines to motivate them. In reality, of course, no leader was selected, and all evaluations, promises, or threats originated from *E* according to a prearranged schedule.

3. Procedure

When the *Ss* first arrived, each completed a short paper-and-pencil questionnaire designed to measure certain personality variables: Independence, dependence, and affiliation. They were then ushered by *E* into a large room

where the circle-drawing task was explained. Each was given a number and was assigned to one of four smaller rooms. Once in their individual rooms, all *Ss* were given a series of five trials of ten seconds each on the circle-drawing task. After each trial, the *Ss* passed their completed set of circles under the door where it was labelled and collected by *E*. At the conclusion of these five trials, *E* brought the four *Ss* out into the large room where he explained the remainder of the experiment. All *Ss* were told that they were in what is known as the "low communication condition," and thus there should be no talking. All communication that was necessary, after the instructions were given by *E*, presumably would take place by means of written notes passed under the door. They were then told that when they got back to their own room, they were to select a playing card and slip it under the door, and on the basis of *E*'s having preselected a card, the person whose card came closest to the preselected one would be group leader. All *Ss* were then told what were the functions of the group leader. They were all instructed to listen and take notes on these functions as any one of them could be randomly selected. The functions of group leader—as explained to the *Ss*—consisted in collecting the work sheets after each 10-second trial, and comparing them to a book of norms based on similar military populations. Then, according to how well these sheets compared to the established norms, the leader could decide to reward or fine the men as a means of motivating them to reach the expected level of performance. From this point on, the instructions given by *E* differed according to the experimental condition in which the *Ss* fell.

a. *Individual evaluated—Individual sanctioned (I-I).* In this condition, the *Ss* were told that the leader would evaluate each individual's work and would be permitted to reward or fine each individual a certain number of points should he feel it necessary to motivate them. They were told that the points were worth money in that the *individual* with the highest point total at the completion of the entire study would be awarded \$5.00. All persons were automatically given 100 points to start by handing to each a certificate worth 100 points. Each *S* was requested to sign this certificate, testifying that he had received 100 points.

The preceding gave us the individual condition in which *P* was working towards his own goal. We decided to include two conditions of interdependence, varying these according to whether *P*'s own performance was evaluated or the entire group's performance—including *P*'s—was evaluated. In both conditions, of course, *P* was a member of a group of interdependent individuals working for a group goal.

b. *Individual evaluated—Group sanctioned (I-G).* In this condition, the Ss were told that the leader would evaluate each individual's work and would be permitted to reward or fine the entire group should he feel it necessary. They were told that the points were worth money in that the group with the highest point total at the completion of the entire study would be awarded \$15.00 to be divided equally among the three members of the group. (*Note:* Since each group presumably had a leader, this left three actual group members.) The group was told that they began with 300 points, or 100 points per person and were given a certificate stating this.

c. *Group evaluated—Group sanctioned (G-G).* In this condition, the Ss were told that the leader would evaluate the entire group's work and would be permitted to reward or fine the entire group should he feel it necessary. As with the I-G condition, the group began with 300 points and potentially could win \$15.00 to be equally divided among the remaining three group members.

All Ss in all conditions were then shown the leader's evaluation sheet. This was the form presumably used by the group leader to evaluate their performance and to promise rewards or threaten fines to motivate them. The evaluation form varied with the three conditions presented above. Each form had seven different ratings which the group leader could check:

- (1) The group (you are) is working too fast. Work slower next work period and the group (you) will be awarded points.
- (2) The group (you are) is working too fast. Work slower next work period or the group (you) will be fined points.
- (3) The group (you are) is working too fast. Work slower next work period. There will be no awarding or fining of points for this next work period.
- (4) The group (you are) is working about right. Keep it up.
- (5) The group (you are) is working too slowly. Work faster next work period and the group (you) will be awarded points.
- (6) The group (you are) is working too slowly. Work faster next work period or the group (you) will be fined points.
- (7) The group (you are) is working too slowly. Work faster next work period. There will be no awarding or fining of points for this next work period.

E carefully went over each of these seven possible ratings with all the Ss. All Ss were then told that besides checking his evaluation of their performance, if he rewarded or fined them, the leader would pass out slips of paper which they should save and turn in at the conclusion of the experiment so that their total number of points could be computed.

E finally reassured all Ss that their performance would be something

strictly between themselves and their randomly selected group leader. *E* told them that his only interest was in the styles of leadership used, and that their own group leader would have complete charge over their work technique. "What you do on the task; whether you work fast or slow, is his problem."

The *Ss* were then led back to their individual rooms, where each passed his card under the door in order for *E* to select a group leader. After each card was passed under the door, *E* announced that a leader had been selected and that while he was familiarizing himself with the evaluation procedures and the norm book, the men would go through a few more trials on the task. He continued by telling them that when the leader was ready, he would begin to evaluate their performance and offer the rewards or fines. The *Ss* were then given a series of three more trials (counting the initial five trials, these were considered as trials six, seven, and eight). At the conclusion of trial eight and before commencing with trial nine, the *Ss* were given their first evaluation sheet. It was by means of these evaluation sheets that *E* manipulated reward or fine. If the *Ss* were in the reward conditions, their leader-evaluation sheet came back with a check mark at number five. If the *Ss* were in the fine conditions, their leader-evaluation sheet came back with a check mark at number six.

The amount and schedule of rewards and fines were the same for all conditions. Persons in the I-I conditions were either to be awarded 50 points or fined 50 points, while persons in both the I-G and the G-G conditions were either to be awarded 150 points or fined 150 points. Since this refers to 150 points for the entire group of three, it means 50 points per person.

For the schedule of rewards and fines, we used the following format:

Work period evaluated	Sanction taken	Sanction offered for the following work period
#8	None—because this is the first period to be evaluated	Reward 50 points (150 for I-G and G-G)
#9	Rewards given to reward conditions Fines taken from fine conditions	Fine 50 points (150 for I-G and G-G) Reward 50 or 150 points (as above) Fine 50 or 150 points (as above)
#10	Rewards given to reward conditions Fines taken from fine conditions	No further promises or threats, but still evaluated as too slow (checked number 7)

#11	None—because none promised or threatened	No further promises or threats (as above—checked number 7)
#12	None—because none promised or threatened	

At the conclusion of the 12th work period, *E* called all the *Ss* back into the large room, cautioning the person who presumably was the group leader not to reveal his identity. The *Ss* were then given a final questionnaire, were told what the experiment was about, and were informed that because of the nature of the study, the money could not be distributed to those scoring the most points, and therefore, at the conclusion of the entire experiment, we would randomly select four persons from our total sample to receive \$5.00 each.

4. Design Summary

We can summarize our experimental design by the following table:

	Reward	Fine
Individual evaluated- Individual sanctioned (I-I)	I	II
Individual evaluated- Group sanctioned (I-G)	III	IV
Group evaluated- Group sanctioned (G-G)	V	VI

Our total *N* of 116 was divided into 20 each for conditions I-V and 16 in condition VI.

5. Validation of the Manipulations

There are two main manipulations to validate: (*a*) Did we successfully create a reward-fine distinction? (*b*) Did we successfully create a sense of independent individuals working towards individual goals in conditions I and II, and a sense of interdependent individuals working towards a group goal in conditions III-VI?

As part of the final questionnaire, we asked the *Ss* to check a series of adjectives which described their group leader. As part of that list, we included the adjectives "rewarding" and "punishing." We find that significantly more of those in the reward conditions check "rewarding" than check "punishing," while significantly more of those in the fine conditions check "punishing" than check "rewarding" ($\chi^2 = 23.94$, $p < .001$).

As part of this same questionnaire, we included a series of questions directed towards determining P's perception of his interdependence with others in his group. As we would not anticipate there being any difference in the perception of interdependence between the I-G and the G-G conditions—because in both, persons are interdependently working towards a group goal—on each question, we compared the I-I conditions with the combined I-G and G-G conditions. We find that the I-G and G-G conditions see themselves as significantly more dependent on the others in their group than do those persons in the I-I conditions. For example: (a) they see themselves more as working together as a group than as separate individuals ($t = 5.64$, $p < .01$); (b) they see others as more dependent on them to do the job well ($t = 5.85$, $p < .01$); and (c) they see that what they did on the job was more important for getting or losing points for the others ($t = 7.20$, $p < .01$).

We conclude, therefore, that we have very successfully created both the desired experimental conditions of reward and fine, and conditions of individual goals and group goals.

C. RESULTS¹

1. *The Relations with Conformity*

We first looked at all of our experimental groups to determine if the introduction of performance evaluations with threats of fines or promises of rewards had any effect. In this analysis, we compared the average number of circles drawn in work period eight—the period immediately prior to the introduction of rewards and fines—with the average number drawn in work period nine—the period immediately after the introduction of rewards and fines. Table 1 presents these data.

TABLE 1
AVERAGE PERFORMANCE IN WORK PERIOD EIGHT COMPARED WITH WORK PERIOD NINE

	Reward				Fine			
	W.P. #8	W.P. #9	<i>t</i>	<i>p</i>	W.P. #8	W.P. #9	<i>t</i>	<i>p</i>
I-I	13.40	15.85	5.70	<.01	14.35	16.80	8.75	<.01
I-G	13.80	15.40	5.00	<.01	13.15	15.15	5.56	<.01
G-G	12.55	13.90	3.97	<.01	13.62	15.25	4.66	<.01

As one can readily see, all six experimental groups significantly increased their performance over its preinfluence level. The introduction of rewards and fines proved to be a rather striking motivator to these *Ss*.

¹ Unless otherwise noted, all statistical tests are two-tailed. Additionally, for all analyses of variance, the experimental groups were reduced to an *N* of 16 each by randomly discarding *Ss* where necessary.

The next, and major analysis of the study, looked at the differential effects of rewards and fines on the conformity behavior of individuals and groups. Conformity in this situation is measured by the extent to which the *Ss* increased their performance on the circle-drawing task in response to the evaluations and inductions of their "leader." In order to eliminate initial differences in ability on the circle-drawing task, we computed a corrected conformity score for each individual and used this corrected score in the analysis of variance of our data. We took the mean number of circles drawn for the initial work periods, 2-5, for each *S*, and correlated this value with the number counted in period nine and period ten. Period nine is the initial period after evaluation and under promise of reward or threat of fine, while period ten comes after rewards were actually given or fines actually taken. Therefore, for work period ten, the *Ss* are being motivated not only by threats or promises but also by the actual taking or giving of fines or rewards.

On the basis of the correlation between their performance on the initial work periods and their performance in work periods nine and ten, we computed a corrected performance score for each *S* for work period nine and a corrected score for work period ten. We then did a two-way analysis of variance on these corrected scores. Table 2 presents the results of this analysis for work period nine and work period ten separately. There are

TABLE 2
SUMMARY TABLE OF THE ANALYSIS OF VARIANCE OF THE CORRECTED PERFORMANCE SCORES

Source	Sums of squares	df	Mean square	F	p
<i>For work period #9</i>					
Goals	5.20	2	2.60	.94	NS
Sanctions	4.96	1	4.96	1.80	NS
Interaction	8.56	2	4.28	1.56	NS
Within	247.69	90	2.75		
<i>For work period #10</i>					
Goals	1.88	2	.94	.31	NS
Sanctions	1.22	1	1.22	.40	NS
Interaction	22.56	2	11.28	3.74	<.05
Within	271.98	90	3.02		

no significant main effects or interaction for work period nine; however, there is a significant interaction effect for work period ten. In order more fully to interpret this significant interaction, we looked at the means for each experimental group for work period ten. These are presented in Table 3.

What is of rather striking interest from both a practical and a theoretical point of view is that rewards are apparently more motivating than fines

TABLE 3
MEAN CORRECTED PERFORMANCE SCORE FOR WORK PERIOD TEN

	Reward	"	Fine
I-I	10.40		9.58
I-G	9.73		9.92
G-G	9.52		10.82

when an individual is working towards his own goal; whereas fines are more motivating than rewards when an individual is working towards a group goal. Although this interaction effect is not significant for work period nine, the trend in the means is exactly the same. That is, in the individual-goal conditions, the reward group conforms more by working harder than does the fine group; whereas in both group-goal conditions, the fine groups conform more than do the reward groups. Apparently, it is this interaction which eliminated the main effects of reward and fine. That the significant interaction is strongest for work period ten as compared with work period nine is also of interest as it is immediately prior to this period that the *Ss* are aware that their leader means business . . . i.e., that he actually will (and has) rewarded or fined them.

The differences between reward and fine within each condition are small and only approach an acceptable level of significance in the group-goal conditions. However, when taken as a whole, the differential pattern mentioned above emerges. Comparing these results with the results of Zipf (6), we note a general similarity. Our most comparable conditions are the individual-goal groups (I-I conditions) in which we find a slightly greater amount of conformity for the reward than for the fine conditions. This finding is directly in line with the Zipf finding in which she found that both rewards and fines were nearly equivalent in motivating *P's* conformity, with a slight edge in favor of the reward. Because Zipf did not include a group-goal condition, we cannot compare our results for the remaining experimental groups with hers.

Given this significant interaction, we may ask ourselves "why?" In interpreting these results, we will refer back to the basic theoretical scheme of social power as put forth by French and Raven (3) and Cartwright(1). Conformity is seen to be a function of motivations *to do* what *O* has requested and motivations *to resist doing* what *O* has requested . . . i.e., the induction and resistance forces. Rewards for conformity increase the motivations to conform to *O* in order to get the reward, while fines for nonconformity increase both the motivations to conform in order to avoid the fine and motivations to resist, stemming from the fact that threats make the entire

situation negatively valent or unpleasant for P, so he would prefer not to be there at all. When the threat of fine increases positive motivation to conform more than it increases the motivation to resist, we would not expect to find any difference in conformity between the reward and fine groups. This is the general finding of Zipf (6) and our own data for the individual-goal conditions, in which each person is only responsible to himself.

When, however, persons are placed into a group such that their behavior has effects for the behavior of others in that group, an additional source of positive (or negative) motivation is added. These are group forces having their source in the interdependences amongst people working together towards a single group goal and therefore being responsible for one another.

When the group is threatened with a fine or a fine is actually taken, there is not only the negative valence of the fine itself (which also exists for the individual working alone towards his own goal), but also, and perhaps more importantly, there is the negative valence of having failed the others in one's group by placing them into a negatively valent region . . . i.e., by getting them fined also. We would suggest that both of the above serve to increase the motivation to conform for the group-goal situation, but as only one operates (the negative valence of the fine itself) in the individual-goal situation, motivation to nonconform may be more equal and thus the threat of fine may actually reduce conformity.

It is further suggested that when you are no longer just responsible for your own fate, but you are now responsible for the fate of others—as in a condition of group interdependence—it is worse to place others into a negatively valent region (being fined) than it is to prevent them from getting into a positively valent region (being rewarded). Thus, under the conditions of group interdependence, the threat of fine adds more to P's motivation to work harder and do better than does the promise of a reward.

As a final analysis of relationships between our experimental variables and conformity, we studied conformity when fines and rewards were no longer operating. Zipf (6) suggested that when P was no longer under threat of fine, the motivation to conform would be lessened relative to the motivation to resist, and thus there would be an increasing difference between rewards and fines. We checked this in our data by looking at the corrected performance scores for work period twelve—the final work period in which the Ss are no longer being threatened with fines or promised rewards. We find no significant main effects or interaction effects for this work period, suggesting that under the conditions of our experiment, there is no effect such as Zipf reports. Rewards and fines still appear equally effective even when no longer relevant

to gaining or losing points. Although we have no way of checking this in our data, it may well be that the *Ss* still thought that their working faster would help them (or their group) in spite of what their leader reported to them. Perhaps additional "nonreinforced" work periods beyond 12 would be necessary to bring out the longer term differential effects of rewards and fines.

2. *The Relations with Attraction to the Group and to the Group Leader*

A second major interest in this study was to examine the effects of reward and fine on *P's* attraction to the group. This variable of attraction, or as it is frequently conceptualized, cohesiveness, became of interest in this study as our expanded consideration of the power theory led us to the realm of group behavior. Even if a leader's use of fines were more motivating to a group's conformity than the use of rewards, what are the consequences of fines for the cohesiveness or attraction of the group for each member? In the long run, should fine threats reduce *P's* attraction to the group, this would have consequences for *P's* feeling of responsibility for the group, and would thus eventually reduce the overall effectiveness of fines as a motivator of conformity.

As part of the final questionnaire given to all *Ss*, we included the following question: "How much would you like to come back again and meet and work together with this group of four people?" This was one of our two measures of *P's* attraction to the group. Our second measure involved having the *Ss* sign one of two statements. (a) If I am given permission to do so, I will come back again in a week or so to have one or two more meetings with *this present group* of four people. I understand that this group will be working on jobs similar to those we have just finished. (b) If I am given permission to do so, I will come back again in a week or so to have one or two more meetings with a *different group* of four people. I understand that this other group will be working on jobs similar to those we have just finished.

In analyzing the responses to the first question measuring attraction to the group, we find there is no apparent indication that rewards or fines had differential effects on *P's* attraction.

In analyzing the signatures as favoring "this group" or a "different group," we find no significant differences between the reward and the fine conditions. Actually, 55 per cent of those in the reward conditions sign up for "this group," while 57 per cent of those in the fine conditions sign up for "this group."

Thus, according to both of our measures of *P's* attraction to his group, we find no indication of differential effects of reward and fine. If, however,

we focus our attention not at P's attraction for his group, but rather at P's attraction for his group leader, we find a significant effect. All *Ss* were asked to answer a question asking for their feelings towards their group leader. The analysis of variance of these responses shows the highly significant effect ($F = 18.80$, $p < .001$) of sanctions. The fine groups like their leader significantly less than do the reward groups.

Combining the preceding two sets of findings, we conclude that although the leader's use of fines may decrease his attraction, it has no effects on the attraction of each member for the group as a whole. Thus, although the motivation to resist the leader may increase as he uses fines, persons still maintain high attraction for one another, and thus are still highly dependent on their group. One might assume that could these individual group members freely communicate with one another—a condition not permitted in our experiment—they might use their cohesiveness jointly to resist their fining leader (5).

3. *The Relations Between the Induction Force, the Resistance Force, and Conformity*

We took as our measure of the induction force (the force towards conforming with the group leader), the product of the valence of getting the reward or avoiding the fine and the probability that P (or his group) could work well enough to get the reward or avoid the fine. Table 4 presents the correlations between this measure of the induction force and the ratio of the total number of circles drawn in the work period immediately prior to influence, #8, and the total number of circles drawn in the work period immediately after influence, #9. We abbreviate this as T 9/8.

TABLE 4
CORRELATIONS BETWEEN THE INDUCTION FORCE AND PERFORMANCE CHANGE T 9/8

	Reward	Fine	Reward & Fine
I-I	.74***	.37*	.59***
I-G	-.29	.28	.03
G-G	.06	.02	.04
I-I & I-G & G-G	.29**	.26*	.27***

* $p < .10$.

** $p < .05$.

*** $p < .01$.

The first point of interest in this table of correlations is to note that for all *Ss* combined, there is a significant relation ($r = .27$, $p < .01$) between this measure of positive motivation and their increase in performance. The

general efficacy of this type of induction force measure has previously been established in the work of French, Morrison, and Levinger (2), Sampson (4), and Zipf (6), and once again is supported by our findings.

The second point of importance is to note that this relationship diminishes as one goes from the condition of individual goals with the individual himself being instrumental in reaching the goal, to group goals with the individual somewhat instrumental (the I-G condition), and finally to group goals with no individual instrumentality (the G-G condition). As with past research, this formula is most predictive where it has reference to the probability that the given individual can reach the goal. When one brings into the picture a group of interdependent individuals, there is less meaning in isolating the single individual's own probability of reaching the goal, because goal-attainment is a function of what he does plus what the others do. Thus, interpretation of this valence-probability measure of the induction force becomes somewhat equivocal for the group-goal conditions.

A third and final point of importance is to note that this measure of the induction force is equally predictive for the reward and fine conditions.

The resistance force remains an important intervening construct in the theory of social power, but is one which we have not yet adequately measured. Although, ideally, it should be measured in a manner similar to that for measuring the induction force, we have found this difficult to do. Thus our only measure of resistance in this study involved a simple question on which the Ss stated the extent to which they felt like resisting the requests of their group leader. We found no significant differences between our experimental groups on this measure, and conclude that a less direct and more refined measure of this force is an important need in continued research with this theoretical scheme.

4. The Relations Between Personality Needs and Conformity

When the Ss arrived, each was given a short paper-and-pencil test which attempted to obtain some measure of three needs: independence, dependence, and affiliation. These were scored and were related to P's conformity ($T\ 9/8$) as well as to certain attitudes, such as attraction to the group, liking of the group leader, the induction and resistance measures, etc. We find no significant relationships between any of these measures and conformity or the attitudinal questions. This may be due to the inadequacy of the short tests used to measure these needs, the failure of the experimental situations to arouse these needs, or both of these factors.

D. CONCLUSIONS

The purpose of this study was to test directly some aspects of the power theory developed by Cartwright (1) and French and Raven (3), by examining the differential effects of reward power and punishment power on individuals working towards individual goals and on groups of interdependent individuals working towards group goals. The finding that the valence-probability measure of the induction force once again proved to be predictive of P's conformity, even when it is not feasible to control the opposing resistance force, adds further weight to that conceptualization. This finding, when joined with the findings from other studies (2, 4, 6), makes it apparent that any theoretical and empirical approach to social influence processes cannot easily ignore some concept of forces or motivations towards conforming.

The most striking finding of this study, however, lies in the significant interaction between the basis of power employed and the variable of individual or group goal. That reward power appears more motivating for individuals working towards individual goals and punishment power appears more motivating for individuals working together towards group goals is quite significant. This finding suggests that at least for reward and punishment, the bases of power operate differently under different conditions, and that the power theory itself, in order to be maximally general, must begin to consider these differences. Although this study has employed only reward and punishment power, it may very well be that the other bases of power would similarly have differential effects on motivating conformity as a function of the interdependence (or lack of it) between the persons over whom the conformity is sought. The additional forces that enter the picture when the basis of power applies to a group of individuals, therefore, may quite radically modify the effectiveness of that base for producing conformity. Very simply and obviously stated, but somewhat ignored in the present statement of this theory of social power, is that what works for motivating individuals to conform may not work *as well*, or *at all*, or *in the same way* for motivating groups of interdependent individuals to conform.

Besides these implications for the theory of social power, these findings also have many obvious practical consequences. If someone is placed into a position of group leadership, he may prove to be a "good" leader—one who gets the job done and keeps morale high—only if he is flexible in his application of different techniques for motivating individuals he contacts alone and the group as a whole.

E. SUMMARY

An experiment was designed to compare the differential effects of reward and fine on individuals working towards individual goals and groups working

towards group goals. One hundred and sixteen male Coast Guard recruits were brought together in groups of four in a two-by-three experimental design: Two individual-goal conditions, one with reward and one with fine; and four group-goal conditions, two with reward and two with fine. All *Ss* were given a series of 10-second work periods on a simple circle-drawing task. An assumed group leader evaluated their performance and sought an increase by offering rewards or threatening fines. The major finding from the study suggests that the use of rewards is motivating for independent individuals working towards individual goals while the use of fines is motivating for interdependent individuals working towards group goals. The implications of these findings were discussed.

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PEER GROUP ATTITUDES TOWARD THE AMPUTEE CHILD*

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A. INTRODUCTION

Students of personality and social psychology have long recognized that one of the significant variables operative in the social interaction of people is that of personal appearance. This factor achieves its most dramatic importance when personal appearance is such as to create a barrier to the social acceptance of the person, without which his chances of successfully coping with his social environment are drastically reduced. Outstanding examples of this sort are provided by people who are in some way physically malformed. A case in point is that of the child with an amputated limb.

One of the most persistent problems of the amputee child as well as other handicapped children is the reaction of his peer group to his disability. It thereby also becomes a problem for those working with the handicapped when they consider ways of providing these children with experiences and activities which purport to enrich the child's life.

There are a number of studies in the literature which point up the close relationship between unfavorable attitudes on the part of significant others and the development of emotional attitudes in the crippled child. Oettinger (3), Kammerer (1), and Rosenbaum (4) have commented on this relationship. However, Mussen and Barker (2) in an empirical study on attitudes toward cripples found the ratings concerning cripples in a variety of respects to be in the favorable rather than in the unfavorable range. None of the studies reported, however, make a distinction among kinds of disabilities and none have investigated the problem of the amputee child with his highly visible bodily loss. Such a disability, unlike other kinds, may also represent a threat to the bodily integrity of the nonamputee and hence may evoke a stronger reaction.

Lack of information about the problem of children with amputations may stem from the fact that it has only been within recent years that technological advances in the field of prosthetics have made it possible to fit the child amputee with an artificial limb, and that before such technological advance, the significance of and need for such information was not seen.

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An investigation of peer group attitudes toward amputees becomes especially important when it is recognized that one of the important factors contributing to the success of prosthesis wearing is the degree to which the limb becomes integrated into the body image of the child. As Schilder (5) has pointed out, the body image is a social phenomenon which is built up, in part, from optical impressions, those from seeing the parts of one's own body and also the bodies of others and perceiving their reactions to one's own body. Thus the attitudes others have about amputation may significantly influence the amputee's body image and either inhibit or facilitate the integration and acceptance of the prosthesis. If this is the case, it is essential both from a theoretical and practical standpoint to determine the attitudes of the amputee's peers in order to assess one of the probable environmental influences on the body image of the amputee child and the consequent likelihood of prosthesis integration.

B. PROBLEM

It was hypothesized that the presence of amputation represents a threat to the bodily integrity of the nonamputee and this threat will be reflected in attitudes embodying greater rejection of amputee children than nonamputee children by their peers.

C. PROCEDURE

To test this hypothesis a 17-item social discrimination questionnaire was constructed to elicit attitudes about appearance, social relationships, and popularity.

Each subject could be named by his peers on 10 of the questions. Three of these questions were nonspecific regarding sex of child chosen and seven applied to children in the class of the same sex as the subject. Half of the 10 questions presented occasions for preferment and half of them presented opportunities for rejection of the child.

The following are the specific items included:

1. Who is the best-liked boy in the class?
2. Who is the best-liked girl in the class?
3. Who do you think is the happiest child in the class? (either boy or girl)
4. Who do you think is the saddest child in the class? (either boy or girl)
5. Which boy in the class do you like least?
6. Which girl in the class do you like least?
7. Which boy in the class is the most fun to play with?
8. Which girl in the class is the most fun to play with?

9. Which boy in the class do you like best?
10. Which girl in the class do you like best?
11. Who do you think is the best-looking boy in the class?
12. Who do you think is the prettiest girl in the class?
13. Who do you think is the child in the class who isn't as nice looking as the others? (either boy or girl)
14. Which boy in the class is the least fun to play with?
15. Which girl in the class is the least fun to play with?
16. Who is the boy that is liked least by the class?
17. Who is the girl that is liked least by the class?

The questionnaire was administered to a total of 28 classes of regular grade school students ranging in age from five to 12 years. Fourteen of these classes contained a child with upper extremity amputations, while the remainder were constituted of classes attended by a normal child of the same age, sex and mental age as one of the amputee children. This was done in order to control as much as possible the influence of these variables in the responses. The socioeconomic status of the amputee and nonamputee groups were similar, being predominantly lower middle class. The classes ranged in size from eight to 58 students, although 26 of them were concentrated in the range from 23 to 39. The total number of children in the classes of the amputee group was 413, while the classes of the nonamputee group contained 423.

Teachers in each of the classes mentioned above administered the questionnaire either by personal interview with each child in the class in the case of the younger children, or by, in the older classes, having the child write the name of the person on the questionnaire.

D. RESULTS

In scoring the questionnaire for each child, every response naming the given child on Questions 1 or 2, 3, 7 or 8, 9 or 10, and 11 or 12, which provide an opportunity for approval or preferment, was assigned a value of plus one. Each response naming the child on Items 4, 5 or 6, 13, 14 or 15, and 16 or 17, which provide opportunities for disapproval or rejection, was given a weight of minus one. A child's score was then computed as the algebraic resultant of all the responses to him.

The theoretical expectation in terms of the hypothesis of greater rejection of the amputee group was that their scores would be in the negative range, while the scores for the nonamputee group should be at least zero—the theoretical average of the scale—or slightly above. These expectations were rather nicely borne out in that the amputee children's scores ranged from -24, as the lowest, to +13. This latter score was quite exceptional, for the

score in no other case was higher than +3, and 11 of the 14 were in the minus range. The mean score achieved by the group was —6. Scores for the nonamputee group ranged from —8, as the lowest, to +21. Seven were positive in value, and seven were minus. Their mean was +2. A *t* test for the significance of the difference between means yielded a figure of 2.536, which indicates significance between the .01 and .02 levels.

The data so far considered offer definite support for the hypothesis of greater rejection for amputees than normals, but they do not perhaps provide as clear a statement of the extent of the rejection phenomenon as one would wish. To supply this, the rank of each child in his sex group in his class was computed. Because the *Ns* upon which such ranks were based were varied, each child's rank was, to make it comparable, converted into a centile position. Ranks thus arrived at for the amputee group ranged from 3 to 50, with three children occupying last places in their groups and with four more being but one place above that position. The mean centile rank achieved for the group was 22. Rankings for the nonamputee group ranged from 28 to 75, with a mean of 48. A *t* test for the significance of the difference between means yielded a figure of 4.39, which indicates significance well beyond the .001 level.

* So far the results for the questionnaire have been considered for the instrument as a whole, but also of interest are differences in responses to the two sets of children on individual questions. To reveal such differences the percentages of persons in the two sets of classes who named an amputee child on the one hand and a normal child on the other were computed. The findings are depicted in Table 1. The absolute magnitudes of the percentages are quite small, as are also of course the magnitudes of the differences between them, but the ratio of the percentage of persons naming an amputee child to those naming a normal (nonamputee) child on almost every question is quite impressive, amounting in one instance—that of naming the saddest child in the class—to eight to one.

E. DISCUSSION

The results of the social discrimination questionnaire offer support to the hypothesis that peer group children express more rejecting attitudes toward amputees than they do toward nonamputee classmates. Besides being more frequently liked least by both class and individual, amputee children are often considered to be the saddest children in the class. This latter, while it is perhaps not a directly rejecting attitude, implies pity and the likelihood of compensatory behavior or other differential treatment of these children. There is a tendency also for them to be named more often as the children who are

TABLE 1
COMPARATIVE PERCENTAGES OF CLASSMATES NAMING AMPUTEE (A) AND NORMAL (N)
CHILDREN ON EACH OF 10 ITEMS ON THE SOCIAL PREFERENCE QUESTIONNAIRE

Best liked	A	xxxxxxxxxxxx	4%
	N	xxxxxxxxxxxxxxxxxxxx	6%
Happiest	A	xxxxxx	2%
	N	xxxxxxxxxxxxxxxxxxxx	6%
Saddest	A	xxxxxxxxxxxxxxxxxxxx	8%
	N	xxx	1%
Like least	A	xxxxxxxxxxxx	5%
	N	xxxxxx	2%
Most fun	A	xxxxxxxxxxxx	4%
	N	xxxxxxxxxxxx	6%
Like best	A	xxxxxxxxxx	3%
	N	xxxxxxxxxxxxxxxxxxxx	7%
Best looking	A	xxxxxxxxxx	3%
	N	xxxxxxxxxxxxxxxxxxxx	7%
Not nice looking	A	xxxxxxxxxxxx	6%
	N	xxxxxxxxxx	3%
Least fun	A	xxxxxxxxxxxxxxxxxxxx	11%
	N	xxxxxxxxxxxx	4%
Liked least	A	xxxxxxxxxxxxxxxxxxxx	8%
	N	xxxxxxxxxx	4%

not as nice looking. This is a more directly rejecting attitude, as is also the designating of the amputee child as one who is least fun to play with.

This investigation does not reveal what effect the expressed attitudes of rejection may have on the behavior of the group toward the amputee children, but whatever it is, it is likely that this attitude is transmitted to the children. Such a child becomes aware that the difference in his body precipitates attitudes and possibly behavior toward him which are different from those toward other children. This may have serious effects in terms of the child's reaction to this perception. He may become withdrawn or overly aggressive (both of which reactions have been found in the behavior of these subjects). He may also attempt to deny his difference from other children, try to identify with them, and suffer considerable frustration by trying to cope defensively and unrealistically with his loss.

The manner in which the child deals with these attitudes found in the environment and the extent to which he incorporates them into his own personality may have profound effects on his self-esteem, confidence, and ultimate acceptance of a prosthesis. If the prosthesis is regarded as a tool which makes him less different and gives him the opportunity for better integration into the peer group, then he is likely to wear and use the prosthesis. If, how-

ever, such a device accentuates his difference or makes him an oddity and someone threatening, it is likely that he will reject it. What effect the wearing of a prosthesis itself has on the attitudes of the peers toward the person is a question for further investigation. Finally, these attitudes should be considered in the introduction of the amputee child into the school group. It is necessary for the parent and teacher not only to prepare the amputee for the questions and stares of his peers, but for other manifestations of rejecting attitudes.

F. SUMMARY

A social discrimination questionnaire was administered to classmates of children with amputations and to classmates of nonamputee children in order to test the hypothesis that the presence of amputation represents a threat to the bodily integrity of the nonamputee which will be reflected in attitudes of greater rejection of amputee children than of nonamputees.

The results of the questionnaire support the hypothesis by indicating a significantly greater number of rejecting attitudes expressed toward the amputee by his classmates than were expressed toward the nonhandicapped children.

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THE ROLE OF UNDERSTANDING IN SOCIAL INFLUENCES ON JUDGMENT*

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A. INTRODUCTION

In some experiments on social influences on judgment, the subject sees or overhears someone else respond before he himself has the opportunity to respond to the same task. What would happen if the reverse were the case; that is, the subject responded first and then overheard someone else judge the same situation? Investigation of this problem is worthwhile for both practical and theoretical reasons. In life there are situations in which an individual does not know how others judge a situation until after he has committed himself to a judgment. If he wishes to be agreeable or to conform to the opinions of others, he has somehow to try to take into account what their judgments are likely to be. As we noted elsewhere:

There are many life situations in which an individual—perhaps because he desires to be "right"—wants to conform to certain standards or to certain behavior that he thinks someone else expects of him or that someone else would show in these situations. But the individual may not know just what constitutes conforming behavior in a particular situation. Perhaps he has to act before he can see how others behave. He may not be able to imitate or repeat someone else's response to a situation but perhaps must infer from other experiences with people what would be their response to the situation. Thus, there are life situations that involve conformity behavior but that are not patterned after the usual experiment on conformity where one has overheard responses which he may copy. We are, therefore, suggesting the study of conformity behavior . . . in a variety of situations that more closely approximate the variety of life situations in which compliant behavior is shown (7, p. 553).

In accordance with this suggestion, it was decided to modify an experimental procedure we have used in previous conformity studies (2, 5, 6, 11). In the modified procedure the subject responded to each of five tasks before overhearing the experimenter's preinstructed confederate respond to it. In some variations the experimenter adjudged responses as wrong or right.

Before turning to a detailed description of the procedures, we want to

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stress that it is one thing to seek to explain social influences in terms of cognitive theories and quite another thing to introduce directly into the experimental situations forces which operate so that social influences result from, or are influenced by, cognitive factors. In the present studies, in order for the subject to "conform" to the other's response or to be "right" in terms of the social situation, he has somehow to be able to infer from the nature of the overheard response in one task what the other person's response will be to a subsequent task. Only by his developing a hypothesis concerning the nature or basis of the other person's response, can the subject predict what the other person is going to say and thereby be able to take this predicted response into account. It does not suffice for him blindly to try to imitate or to copy or to match the other person's response without understanding its relation to the task. In contrast, in conventional studies on conformity, including those by the writers, it is often difficult to ascertain whether so-called "conforming" behavior is based on understanding or sheerly on rote imitation.

B. GENERAL PROCEDURE AND SUBJECTS

The material to be judged consisted of a series of five cards, each of which contained a drawing of a square with two line segments radiating out of it at different angles. One line segment was one inch long in each card and the others were 15/16ths, 14/16ths, 12/16ths, 10/16ths, and 8/16ths of an inch in Cards 1 through 5, respectively. The experiment was introduced as a test of visual acuity that constituted part of a new intelligence test being standardized by the psychology department. Subjects were asked to select the shorter line in each card. They were cautioned not to include the sides of the square as parts of the lines.

In the control experiment the cards were shown to only one individual. In the experimental variations, the cards were administered to two or more individuals, of whom only one was a naive subject while the others, although ostensibly naive subjects, were actually the experimenter's confederates who had been told how to respond. Serving as (naive) subjects were 134 college students. College students also served as confederates. Three confederates served in each of Experiments IV and VIII, and one in each of the remaining experimental variations. The subject responded to each card first and then it was passed to the confederate or confederates each of whom in turn responded to it. In Experiments I through IV the confederate (confederates) consistently gave incorrect responses, i.e., designated as shorter the line segment that was actually the longer of the two. In Experiments V through VIII the confederate (confederates) consistently gave objectively correct

judgments. The experimenter evaluated responses in some variations, referring to them as right or as wrong. The evaluation was made after the subject and confederates had responded and before the next card was presented. At the conclusion of the experiment, the confederates left the room and the cards were administered to the subject alone, with no evaluations offered in this retrial.

C. SPECIFIC PROCEDURES

1. *Experiment 0 (Control)*

The cards were given to the subject alone. There was no confederate present and no evaluation was made by the experimenter.

2. *Experiment I (Incorrect Response)*

The confederate consistently gave incorrect choices.

3. *Experiment II (Confirmation of Incorrect Response)*

The incorrect response made by the confederate was called right by the experimenter although it was contrary to the assigned task. The subject was said to be right if he had chosen the same line as the confederate. Otherwise he was called wrong.

4. *Experiment III (Confirmation of Incorrect Response in Successive Trials)*

After the procedure of Experiment II had been used with all five cards, the experimenter said that the confederate had scored 100 per cent on the test, but that the subject had not, and therefore the test would be readministered in order "to see if you too can get 100 per cent on such an easy test." The five cards were then readministered to both the subject and the confederate, the procedure again being that of Experiment II. If the subject did not give the same answer as the confederate (the incorrect response) in every card, the challenge to obtain 100 per cent on the test was given again and the experiment was readministered.

5. *Experiment IV (Three Confederates)*

The procedure differed from Experiment II only in that there were three confederates instead of one.

6. *Experiments V through VIII*

These were the counterparts of Experiments I through IV respectively, the difference being that the confederates consistently gave correct responses,

i.e., selected the objectively shorter line. The experimenter judged correct responses as wrong and incorrect responses as right. Hence in Experiments VI through VIII (where the evaluation was used) the confederate's correct response was called wrong and the subject was called right only if he gave a false judgment.

D. RESULTS

Table 1 presents the percentages of false judgments in each experiment as well as the mean for all five cards and the mean for the last four cards. The latter mean is presented since in most variations the experimenter's evaluation could not have influenced responses to the first card. Where the cards were readministered, as in Experiments III and VII, the table presents the results on the final administration. For purposes of comparison, the table also contains the percentages of false judgments obtained with college students when the subject responded after the confederate (confederates).

The control experiment, which is not included in the table, was administered individually to 20 college students. The responses were correct except for one false judgment in the first card.

Turning to Table 1, we see that Experiments I and II, as well as their counterparts, Experiments V and VI, yielded few false judgments, regardless of whether the subject responded before or after the confederate. False judgments were more frequent in the remaining variations which used successive trials or three confederates. In most cases, false judgments were less frequent when the subject was first to respond. A striking exception was Experiment III, where for every card false judgments were more frequent when the subject went first.

Let us now focus on the last column of Table 1. We see that in Experiments II and V the average percentage of false judgment was not influenced by the order of responding. When the subject responded first rather than last, there were relatively fewer false judgments in Experiments I, IV, VII, and VIII (the differences being 7, 28, 9 and 8 per cent, respectively) but relatively more false judgments in Experiments III and VI (the differences being 24 and 2 per cent, respectively).

Let us now rank the experiments in each series in the order of increasing frequency of false judgments, using the mean of the last four responses. The first place denotes the least false judgments and the last place denotes the most false judgments. In the series in which the subject responded first, Experiments I and V are tied for first place (no false judgments), and Experiments VI, II, VIII, IV, VII and III hold the second through the seventh

TABLE 1
PERCENTAGES OF FALSE JUDGMENTS WHEN SUBJECT RESPONDS BEFORE OR RESPONDS AFTER CONFEDERATE

Experiment	Confederate's communication	Procedure	Responds first*	Cards					Mean of 5	Mean of last 4
				Ss	1	2	3	4		
I	incorrect	no verdict	S	10	20	0	0	0	4	0
			C	15	20	13	13	0	9	7
II	incorrect	called right	S	20	10	10	15	0	5	8
			C	15	33	7	7	7	7	12
III	incorrect	successive trials, called right	S	22	64	45	45	50	50	51
			C	15	60	33	20	20	20	31
IV	incorrect	3 confederates called right	S	10	10	30	20	30	10	20
			C	10	100	40	40	60	60	60
V	correct	no verdict	S	10	10	0	0	0	0	2
			C	10	0	0	0	0	0	0
VI	correct	called wrong	S	20	10	0	10	0	0	4
			C	10	20	0	0	0	0	4
VII	correct	successive trials, called wrong	S	22	36	23	27	27	27	28
			C	10	60	60	40	20	20	40
VIII	correct	3 confederates called wrong	S	10	0	20	10	20	20	14
			C	10	60	60	0	20	20	32

* S indicates that the subject responded first to each task, C that the confederate (confederates) responded to each task before the subject.

rank, respectively. For the series of experiments in which the subject responded last, Experiments V and VI are tied for first place (no false judgments), Experiments I and II are tied for second place, and Experiments III, VIII, VII and IV are in the third through the sixth places, respectively.

With one exception, corresponding experiments had the same place with regard to the per cent of false judgments in the two series or differed at most by one rank. Note that in both series, Experiments I, V, VI were in first or second place, Experiment II in second or third place, Experiment VIII in fourth place and Experiments IV and VII in fifth or sixth place. The exception was Experiment III. When the subject went first, Experiment III was in seventh place (yielded 47 per cent, the largest percentage of false judgments) whereas when the subject went last, it was in the third place (yielded 23 per cent false judgments).

1. *Variations of a Method*

When the subject responded first, the most effective method for obtaining false judgments was that of successive trials as in Experiment III. In a new experiment, the procedure was varied by giving a verdict only after all five cards had been judged rather than after each card. In other words, no evaluation was made until after the fifth card; then the experimenter announced that the confederate, who gave false responses throughout, had attained 100 per cent on the test but that the subject had not, and hence the cards would be presented again. If the subject did not give false judgments throughout the second trial, the evaluation was given again just before the third trial. In this manner, a maximum of four trials was allowed. This method, which will be referred to as the postponed verdict, was used with 12 college students; for purposes of comparison 12 other students (selected from the same class) were tested with the procedure of Experiment III, where the right-wrong verdict was given after each card.

Postponement of the verdict made for more false judgments, yielding 83, 75, 75, 75, and 75 per cent in Cards 1 through 5, respectively, compared to 42, 42, 33, 33, and 33 per cent when the right-wrong evaluation was given after every card. The corresponding means of false judgments were 77 and 37 per cent, respectively. When the verdict was postponed, there were nine subjects who gave false judgments to all five cards in a trial (three doing so on the second trial, five on the third trial, and one on the fourth trial); there were only four subjects who gave false judgments throughout a trial when the right-wrong verdict was used (with one subject doing so on the second trial and three on the third trial). Whereas there

were only two subjects who gave no false judgments whatsoever when the verdict was postponed, there were six in this category when it was not postponed. In short, successive trials in which the verdict was given only at the end of each trial made the most effective procedure for obtaining false judgments, more effective even than the procedure of Experiment III.

Not only the amount of false judgments but also their duration was greater when the verdict was postponed. This is suggested by the retrial data (when the confederate left and the cards were presented to the subject alone with no evaluation). On the average, the retrial that followed the method of postponed verdict yielded 42 per cent false judgments compared to 23 per cent for the retrial that followed repeated right-wrong evaluations. Of the six subjects who gave false judgments throughout the retrial, four had had the postponed verdict. Incidentally, only correct answers were given in the retrial by subjects who had given only such answers when tested with the confederate.

2. Qualitative Data

Most subjects did not offer any spontaneous comments during the experiment although their facial expressions and gestures often denoted surprise or chagrin at the evaluation or at the discrepancy between their answers and the confederate's answers. Comments were more frequent in the variations with successive trials than in the other variations, in part because of the greater time required.

Comments made spontaneously during the experiments include the following: "Why aren't we agreeing?" "My eyes must be bad." "I can't see why I'm wrong." "There's some trick to this." "Do you want me to say what I see or what will probably be called right?" "I've got to be honest with myself even if I'm wrong." "Why is he (the confederate) always right (or always wrong)?" "It probably depends on the angle from which the lines are viewed." "Maybe I have bad perception or something or maybe I don't understand the instructions." "Something awfully secret about this—some mystery involved." "Perhaps these are optical illusions." "No point in retesting me—I'll stick to what I see and I won't change my mind." "I'm sorry but I just can't agree. The more I look, the more determined I get."

The kinds of answers subjects gave to questioning after the experiment may be illustrated by responses obtained in variations with successive trials wherein the confederate had made objectively incorrect choices that were evaluated as right. One subject who had agreed with the confederate's false judgments gave the following explanation of his responses:

This seems to be a three-dimensional type of thing. It all depends on the projection of the seemingly small line from the box. If you look at the two lines as being in different planes, then it's easy to perceive the seemingly smaller line as being longer.

This subject had given false judgments throughout the trial also, saying, "I think I'm on the right track now."

Subjects with the same quantitative results sometimes yielded strikingly different qualitative data. For example, of two subjects in the postponed verdict experiment, both of whom gave false judgments throughout the third trial, one insisted that he had not been influenced by the confederate, saying "I wasn't even listening to her. Besides, how could she have influenced me when she answered after I did?" The other subject confessed that he had been influenced, adding, "The only reason I changed was because he was getting 100 per cent and I wasn't. I knew what he had said so I switched my answers."

Reasons subjects gave for changing their answers to conform with the confederate's included the following: "After a while I realized that these were perceptual illusions." "I changed my answers because I was wrong before." "I just didn't want to be different." "To me it didn't look shorter but he was correct so I followed." "I wanted to get 100 per cent. Wasn't that the object?" "I wanted to be up to snuff." "I didn't want to run through it again time after time." In other words, this last subject said she gave objectively incorrect answers in order to halt the successive trials and put an end to the experiment.

When asked why his answers had disagreed with the confederate, one subject said, "He's probably good with lines and I'm not too familiar with them." Other subjects gave similar answers, suggesting that the confederate knew more about measurements than they, or knew more about geometry or mathematics or optical illusions or perception. A few subjects said that the confederate must have had advance information or that he had been instructed as to how to respond. A subject who had consistently disagreed with the confederate reported, "I said what I saw and I'd say it all day unless the other guy was bigger than me." Another subject insisted, "It can only be as I called them. If I had a ruler, I could prove to you that I was right."

E. DISCUSSION OF RESULTS

The experimenter's verdict seemed to be a more influential factor than the confederate's response. This is suggested by the finding that Experiments II and VI, in which the experimenter evaluated responses, yielded somewhat

more false judgments than did Experiments I and V, the corresponding variations without the experimenter's evaluations. Moreover, false judgments were obtained in Experiments VI, VII, and VIII, where the confederate gave correct judgments that were called wrong by the experimenter.

What would happen if the experimenter's evaluation were used without a confederate? This might be one way of determining the relative strength of the two factors. Some preliminary work in this direction has yielded, on the whole, relatively fewer false judgments than when a confederate was used. For example, an experiment with successive trials was administered to the subject alone in which his correct responses were called wrong and he was urged to get 100 per cent on the next trial. This yielded fewer false judgments than the corresponding experiments in which the subject responded before or after a confederate. It seems that because someone else (the confederate) gave false judgments, the subjects were more likely to do so. Moreover, the subjects seemed more willing to continue with the experiment when the confederate was used than when they were tested alone. Perhaps the confederate served, so to speak, as "social facilitation." See Luchins and Luchins (11) for further discussion of this result.

Although some of the subjects were apparently unconcerned about the overheard response or the experimenter's verdict, most subjects showed signs of concern. Their comments, gestures, and grimaces suggested that they were surprised, puzzled, and in some cases anxious about or annoyed at the nature of the verdict or at the conflict between their own responses and the others' responses. Why should the subjects have shown such concern? Factors such as the following may have been operating: (a) a desire to account for the discrepancies in judgments or to understand or to reconcile the apparently contradictory statements; (b) a desire to have some meaningful understanding of what is happening in order "not to live in a mental fog," as the late Max Wertheimer once worded it; (c) a wish not to be different from others, contrary to others, or contradicted by others; (d) a desire to be called right or to obtain social approval.

Underlying these factors may be a desire to seek consensual validation of one's impressions and judgments. Involved here may be the belief that a percept is confirmed or validated if others report it or approve of it. It may be conjectured that an individual's sense of surety—cf. Cantril's discussion (1)—in his perceptions and even his sense of what is real or objective are enhanced if his judgments are accepted by others or are similar to others' judgments. It is difficult at times to maintain one's impressions of people, situations, and events when they are counter to others' impressions. It is of

interest to study the relationship between the strength of one's beliefs in his judgments, impressions, or perceptions, and the extent to which they are accepted or held by others.

Although subjects showed some concern with the confederate's response, their concern was seldom great enough to lead them to change their response to a given card (in the same trial) after overhearing the confederate. There were only three instances in which such changes occurred, all of them in the variation with three confederates (Experiment IV). Why were there so few instances of such change? Perhaps because to change might imply cheating or copying. The subject might not have wanted to be considered a cheater or copycat. Even if he were influenced, he might prefer a more subtle way of revealing the influence. More generally speaking, the results may reflect the paradox of youth which has a negative attitude toward conformity together with readiness to conform.

Variations with successive trials yielded about the same percentage of false judgments in all five cards in the last trial. In contrast, in experiments where the confederate responded first, percentages of false judgments tended to decrease from the first to the fifth card; that is, the larger the difference between the line segments, the fewer false judgments were obtained. In the present variation with successive trials, however, the extent of false judgments seemed rather independent of the clarity of the evidence. The present results were similar to those in a study (11) that used communications which described a person's behavior; the assigned task was to select the communication that described the more extroverted person. In the judgment of these communications the social influences tended to be about as strong whether there was a slight or a marked difference between the two communications to be judged. These results as well as the results with line segments in the present variations which used successive trials, run counter to the oft-cited dictum that social influences tend to be greater in unclear, ambiguous situations than in clearer, well-structured situations. It is this dictum which probably underlies the observation that politicians prefer to fish in muddy water. Our results point to a need for caution in regarding as a well-established generalization the dictum that social influences tend to be greater in ambiguous, unclear situations. Although we have in the past reported experiments in support of this dictum (3, 5), it now seems to us that it does not hold under all conditions. Perhaps the so-called generalization concerning the role of clarity of evidence in social influences may not be valid in situations where the judgment objects play a peripheral role in the judge's cognitive grasp of the situation. This may be because social forces

external to the judgment object play a more central role. Or it may be because the subject views the judgment object from a point of view that leads him to overlook aspects of it that are relevant for the judgment. Thus, he may view the object from the frame of reference of a generalization (e.g., "that it belongs to the class of experiences called perceptual illusions") so that he does not attend to its particularity or uniqueness. Perhaps the dictum concerning social influences and the clarity of evidence is valid primarily in situations where the judgment object plays a relatively central role in the subject's "behavioral world" so that he has a concern for and an awareness of the particularity of the judgment object. A problem for future research is to determine the range of conditions under which the dictum is or is not valid. (See Luchins and Luchins (11) for further discussion of why social influences, under some conditions, may be as strong in clear judgment tasks as in unclear ones.)

Most effective in yielding false judgments was the experiment with successive trials in which the verdict was postponed until the end of each trial. That this method yielded more false judgments than did the verdict after every card may be due to a variety of factors. One might refer to the efficacy of intermittent reinforcement as compared to repeated reinforcement. Moreover, the postponed verdict gave more opportunity for the building up of anxiety or curiosity as to which response was right in the various cards. Furthermore, there was less chance for the subject to refute the validity of the verdict than when it was made immediately after the card in question had been viewed and judged. Yet even in this most effective variation, about one-quarter of the subjects did not give false judgments on all five cards in any trial. Further research is needed to maximize (and minimize) agreement with false judgments, and disagreement with true judgments.

Our results suggest that in some cases the same overt responses resulted from different processes. For example, some subjects apparently used the confederate's responses as cues for their subsequent responses while other subjects used their own responses as cues. This difference is illustrated by some subjects who participated in the experiment that involved successive trials and the postponed verdict. One of these subjects, who gave objectively incorrect answers to all cards in the third trial, said that since the experimenter had called him wrong before, he changed his answers from those that he had given in the preceding trials in order to attain 100 per cent on the test. Another subject, who also shifted to objectively incorrect answers in the third trial, explained that he decided to give the same answers that the

confederate gave in the preceding trials since the confederate was getting 100 per cent. Thus we see that the former subject reported using his own preceding responses (in conjunction with the verdict) as a basis for change, whereas the latter subject reported using the confederate's preceding responses as the basis. In the same variation, there was a subject who gave false answers because he "caught on that a perceptual illusion was involved," whereas another subject gave false answers because she was tired of having the trials repeated and wished to terminate the experiment. Such data point to the importance of studying the process that led to the response rather than merely focusing on the response. See Luchins (2) for a detailed discussion of this point. Regardless of the process that brought them about, it is not denied that the responses were the same and had the same effect on the object of judgment, i.e., the wrong line was chosen. That responses were brought about by different processes may have practical consequences in some situations, but have no practical consequences in other situations. Nonetheless, in the development of a general theory to aid in the understanding, prediction, and control of behavior, it is advisable to pay attention to processes that lead to responses, instead of focusing solely on the end products of the processes: the responses.

F. GENERAL DISCUSSION

1. *Existence of a Consistent Relationship*

In each of the present experiments the confederate did not respond in a random manner. Rather, he consistently chose the shorter (or longer) line segment. The confederate's responses, therefore, did not represent an and-summation of unrelated reactions without an intrinsic link between them, but represented a certain consistent relationship to the relative length of each pair of the line segments. Similarly, where the experimenter evaluated responses, his verdicts were consistently related to the line segments and also consistently related to the confederate's responses. Such consistency allowed the subject to discover a relationship and, if he wished, to use it as a cue for his responses.

Preliminary studies in which the confederate gave his responses at random, sometimes choosing the longer and sometimes the shorter of the two line segments, revealed that his responses could not adequately serve as a cue for the subject's responses when he answered after the subject. It may also be in order to mention here an exploratory study in which the nature of the judgment material changed from task to task. Instead of judgments of five pairs of line segments, the five tasks were to select the darker of two shades of grey paper, the more extroverted behavior as described in two commu-

nlications, the shorter of two line segments, the drawing which had a hidden picture of a house in it, and the polygon with the larger area. The subject answered before the confederate, who in each task made an incorrect choice that was called right by the experimenter. Subjects' comments suggest that they found it difficult to discover a consistent relationship or principle underlying the confederate's responses or the experimenter's evaluations. Apparently the consistency was masked by the heterogeneity of the tasks. Subjects generally did not view the tasks as constituting a homogeneous series (homogeneous with regard to the principle of judgment used by the confederate and called right by the experimenter).

In short, when the subject answers first, in order that he be able somehow to utilize the confederate's responses as cues or as stimuli for his own behavior, it seems necessary that (*a*) there be some rather consistent basis or meaning to the confederate's mode of responding; and that (*b*) the subject understand this basis or meaning.

Social judgment situations differ with reference to the degree to which there is a consistent or intrinsic relationship between the socially approved response and the object of judgment. There are social situations in which such a relationship approaches zero. The only way one succeeds in giving a correct response in such situations (other than guessing at it) is to repeat or mimic the responses of other people who are called correct. In such situations it is important that the model (the social influencing individual) respond first. But there are other life situations in which the socially approved response is intrinsically or consistently related to the evidence for judgment. Such a relationship can be grasped, with varying degrees of success, from the behavior of others. Once one understands what the relationship is, then one is able to give the socially correct or required response in situations where one does not have the model before him. In these kinds of situations, it is not essential that the model respond first. Studies that are limited to situations where the above-mentioned relationships do not exist, may yield a one-sided view of social influences. They may reveal much about how and why one repeats or mimics others' behavior, but they do not reveal how one learns from others' behavior to understand what is called for in social situations.

2. *Learning of Specific Responses or Relationships*

As previously mentioned, the subject in the present experiments who wishes to give the same response as the confederate cannot do so merely by mimicking, imitating, or matching the confederate's response. He needs some under-

standing of the relationship of the model's responses to the line segment and to the experimenter's verdict. Only insofar as he grasps this relationship can he choose to respond so as to conform to (or diverge from) the other person's responses.

The customary experiments on social influences, where the model answers first, allow the subject to mimic or repeat blindly the model's responses. However, when the subject deals with a given task before the model does, he may have to learn from the model's responses instead of repeating them. It seems to us important to distinguish between learning of observed behavior by rote and by understanding, between learning merely to do what a model does and learning from what a model does. The latter is often the goal in social learning situations, e.g., in school (7).

Inappropriate, ludicrous behavior sometimes results from rote repetition of other persons' responses without an understanding of their basis or meaning. At times children and even adults find themselves in situations similar to that of the donkey, desirous of having his master be as fond of him as of the family dog, who imitated the dog's behavior by walking into the living room and attempting to sit in his master's lap. More tragic than the donkey's blunder are the attempts of pupils who repeat what the teacher said or what the text had in it because they memorized the precise numbers and operations of the illustrations rather than understanding what the models exemplified (4, 7).

It is not denied that social influences and learning can take place both by rote and by understanding. But there may be different consequences if one or the other process led to the influence or to the learning. Relevant here are experiments (9, 10) in which we compared the effects of learning a model's responses by rote with learning or discovering the principle underlying the model's correct choices. In these experiments, learning by rote produced more negative transfer effects.

When Max Wertheimer criticized studies on social influences as being largely evidence-free (12) it seems to us that he showed a concern with the fact that they offered little opportunity for learning by understanding. They were situations in which the learner had no alternative but to repeat blindly another's behavior. Without denying that there are life situations in which there occurs blind, stupid imitation of a model's behavior, Wertheimer doubted the wisdom of limiting experimentation to situations which force learning to take place in this way. He doubted the adequacy of theories about social learning, or, more specifically, theories about social values, that stemmed from such experimentation.

It seems to us that concern with experiments where one learns to copy another's specific response—no matter what "intelligent reasons" the learner may have for copying or "conforming"—does not necessarily throw light on behavior that involves processes that underlie the grasping of relationships. We usually do not describe as "intelligent" any behavior which involves mechanical repetition of a specific response (4, 7). When we talk of intelligent behavior, we often mean that one has understood certain relationships, has applied a principle correctly, has learned to deal sensibly with a situation, adequately meeting its requirements rather than acting from sheer force of habit. Experimentation is needed with social situations in which intelligent behavior is fostered. Such studies are particularly important in view of the current interest in social engineering and in the development of a technology for the shaping of behavior in the social field.

3. "*Reasonable*" Influence

It is sometimes pointed out that there is a reasonable basis for conformity or social influence in that people conform or are influenced for "reasons." Nonetheless, the individual may—for "reasons"—make a response that is not reasonable with reference to the judgment object. Because of this, we suggest that the "reasons" or other such cognitive behavior that may underlie the response be distinguished from the arbitrariness or fittingness of the response in relation to the particular object or phenomenon that is being perceived and judged in the social field. A distinction has to be made between the nature of the process underlying the response and the relation of the response to the object of judgment.

4. *Expression Versus Impression*

In one sense, a judgment is a private act of the individual, but in another sense it is highly social. If one judges and keeps the judgment to himself, the situation is quite different from when one reports a judgment to others. His public report—even if not his private judgment or impression—may be shaped by his conception of how his report will be received by others. Moreover, the language which he uses to express his judgment or impression (the linguistic form of the impression) may show social influences even if his impression does not. We learn to use language not only to convey our thoughts but also to cloak our thoughts in socially acceptable fashion, and even to disguise or hide our thoughts in line with social demands. For example, as a child, one may say that a piece of cheese "stinks"; as one grows older, he may learn to say that the cheese has an odor which he does not like. The cheese still "stinks" to him, but he has learned how to express himself in

order to meet with social approval or not to offend others. Similarly, children as well as adults learn that certain descriptions of an object or event meet with more or less social approval or disapproval than do others. For example, to say that a person passed away is commonly considered more proper than to say that he died or dropped dead. To take an extreme example, one would be courting trouble if he described his country's flag as a rag on a stick.

It may be worthwhile to distinguish between social influences on impressions in contrast to social influences on *expressions* of impressions. Examples of both were found in our results. Some subjects were so influenced that they actually had the impression that the objectively shorter line was longer, e.g., because they concluded that the drawings represented perceptual illusion or were of three-dimensional figures. Other subjects did not have their impressions influenced but only the expressions of their impressions, e.g., they reported as shorter the line that they actually regarded as longer. In some cases this was because they had learned which responses met with social approval, e.g., the experimenter's evaluation of right. Social forces thereby helped to shape the expression of their impression even if not the impression itself.

Whether or not an isomorphic relationship prevails between an impression and the expression of the impression may depend on the nature of the social situation and how it directs or controls one's communications. Social situations differ in the degree of freedom they give an individual to express his impressions so that some things are rarely ever said or pointed to, even though they are clear and striking in one's perceptual field. The extent to which a social group or social situation offers opportunities for frank expression of impression may depend in part on its social structure, e.g., its communication structure. Moreover, certain forms of expression may encourage veridical judgments more than do others. There is some evidence in studies of psycholinguistics and anthropology that language forms or modes of communications of various cultural groups differ with regard to the extent to which they foster an isomorphism between an impression and its expression. Of course there are also other factors that may influence the relationship between impression and its expression. Among these one might mention the subject's ability to express himself, his degree of conviction with regard to the accuracy of his judgment, his relation to his listeners, his persuasibility in a given situation, and more generally, his personality.

G. CONCLUDING REMARKS

The experiments may be regarded as pitting two forces against each other: the tendency to be guided by the evidence against the tendency to preserve

one's status or position in one's own eyes or in the eyes of others. In other words, there is a conflict between saying what one's eyes see and saying what is socially acceptable or what will "get one by" in the social situation. Whether one or another tendency prevails may be the resultant of a host of factors that determine whether the one or the other response appears more significant to the subject in the given situation.

It is important to realize that an act of judgment takes place in a context and that (through previous experiences or through the introduction of certain forces in the immediate situation) the object of judgment can be made to assume a peripheral role. In such cases an individual, although ostensibly judging a certain object, may be more concerned with whether his response meets with social approval than with whether it does justice to the assigned object of judgment. Or he may not view the particular situation freely but view it in terms of a generalization or an *Einstellung* (*cf* 7).

Perhaps it hinges on how the judge is related to the judgment situation, whether he is related primarily to the evidence or to other aspects of the situation. This relation may determine whether the judge focuses on the judgment object and its particularity, whether he speaks openly, frankly, and directly, and to borrow a biblical phrase, whether he deals righteously with the situation and walks in the path of truth—or, on the other hand, whether he allows himself to be persuaded by factors external to the judgment object and becomes less concerned with the veridical aspects of the judgment, in relation to the object judged, than with such factors as the consequences of the response for himself and his status in the social situation.

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A COMPARISON OF THE FIRST AND SECOND ORDER DIMENSIONS OF THE 16 PF AND CPI INVENTORIES*¹

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A. INTRODUCTION

Cattell's Sixteen Personality Factor Questionnaire (6) and Gough's California Psychological Inventory (20) are two widely used personality inventories that have each been the subject of considerable research (1, 2, 3, 4, 5, 9, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22). Superficially, these two instruments would appear to have much in common, for they are both objective-type instruments requiring the testee to indicate whether each of a series of statements does or does not apply to him, and both yield a comprehensive set of scores, 16 for the 16 PF and 18 for the CPI, which are supposed to provide diagnostic information about the several aspects of the testee's personality. This superficial resemblance, however, masks a rather basic difference in the separate rationales guiding the development and validation of the two instruments. In the development of the CPI scales the typical procedure was to attempt to define a criterion dimension which seemed to possess broad personal and social relevance, then collect inventory statements which appeared to have psychological relevance to the criterion dimension, and finally to establish the relationship of these items to appropriate external criteria by administering them to "... persons who can be shown by some procedure entirely independent of the test to be strongly characterized by this trait or dimension" (20, p. 21). The procedures for establishing item relationship with external criteria generally involved some kind of ratings by outside observers. The development of the 16 PF scales, on the other hand, was guided by an intensive search for the basic dimensions of personality as identified by factor analytic technique (1, 2, 3, 4, 5, 24). After repeated factor analytic investigations had established the construct validity and relative invariance of the factors identified, evidence was also

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¹ The test data used in this analysis were secured from the Mental Health in Teacher Education Project at The University of Texas, a project currently under grant from the National Institute of Mental Health. The author is indebted to Dr. Glenn Barnett and Dr. Robert Peck, co-directors of the project, for the use of these data.

accumulated regarding the relationship of these factors to external criteria (7, 8).

The fact that these two instruments exemplify two rather distinct orientations to scale development and validation² suggests that some conclusions of both theoretical and practical importance might result from a statistical analysis and comparison of the score dimensions of the two tests. From a theoretical point of view it would be valuable to inquire to what extent and in what manner scores based on subjectively-defined descriptive concepts which appear to ". . . possess broad personal and social relevance" (20, p. 7) tend to have common variance with scores based on factorially defined dimensions that have met the test of simple structure (6). This analysis should be made for both the first and second-order domains, since the nature of the dimensional relationships characterizing each domain will be of a different kind and order. From a practical point of view such an analysis should (a) provide cross-validation and construct validity evidence for both the 16 PF and CPI instruments; and (b) suggest some important guides and insights for the interpretation of 16 PF and CPI scales in the counseling situation. These, then, are the considerations that defined the task of the present investigation.

B. METHOD

The CPI and Forms A and B of the 16 PF were administered to 291 sophomore college students, of whom 226 were girls and 65 were boys. The raw scores of the equivalent factor scales of the two forms of the 16 PF were added together so as to provide sixteen scores of somewhat greater reliability than could be achieved with a single form of the test. The eighteen CPI scores and sixteen 16 PF scores were then intercorrelated, and the resulting 34×34 correlation matrix was subsequently analyzed and interpreted. The correlation matrix was then subject to a centroid factor analysis (27), and six factors were extracted from the matrix. Application of Humphrey's rule (11) and Burt's empirical formula (26) indicated that factorization should be terminated after the extraction of this sixth factor. The resulting factor matrix was then rotated to orthogonal simple structure by means of Kaiser's Varimax Technique (23).

C. RESULTS

The correlation matrix for the separate subscores of the CPI and 16 PF instruments is shown in Table 1.² It seems appropriate to regard this matrix

² The complete correlation matrix, including scale intercorrelations within the

as a representation of the relationships among the first-order dimensions of the two instruments, since the subscores of the 16 PF represent the first-order factorial dimensions resulting from repeated factor analyses of items covering a broad domain of personality characteristics, while the subscores of the CPI could be interpreted as an alternative allocation of the first-order space.

In analyzing the first-order space, only correlations of .40 and above will be interpreted. If this is used as the criterion, it can be observed that only 36, or 12 1/2 per cent of the 288 correlations between the two instruments are of this magnitude or higher. Thus a first inspection of the data reveals a considerable lack of congruence in the allocation of the first-order test space of the two instruments.

These 36 correlations of magnitude .40 or higher may be characterized first in terms of the CPI scale variables involved. Represented among these 36 correlations are four CPI scales that were not correlated .40 or higher with any 16 PF scale, six CPI scales that were correlated .40 or higher with only one 16 PF scale, and eight CPI scales that were correlated .40 or higher with from two to five 16 PF scales. The four CPI scales which were not correlated .40 or higher with any 16 PF scale were Capacity for Status, Communality, Psychological-mindedness, and Achievement via Independence. The low correlations for Communality and Psychological-mindedness may perhaps be attributed to their low reliability, reported in the CPI manual as .44 and .49 respectively (20, p. 22). The explanations for the Capacity for Status and Achievement via Independence scales are less certain; both of these scales, however, refer to exceedingly complex social behavior patterns which are the complicated resultants of motivational dispositions, abilities and skills, and situation-linked stimulus conditions. Their sheer complexity may militate against their correlation with variables of demonstrated factorial purity. Yet in spite of these considerations it is difficult to understand why the 16 PF Factor "E," defined as Dominance or Ascendance, did not correlate more highly with two CPI scales whose definitions include reference to dominance or ascendancy.

The six CPI scales that were correlated .40 or higher with only one 16 PF scale were the following: The CPI Dominance scale was correlated .61 with the 16 PF Adventurous scale. The CPI Sociability scale was correlated .69 with the same 16 PF Adventurous scale. Both correlations are reasonable ones, especially in view of the rather appreciable correlation existing between

two separate instruments, is not shown in Table 1 because of considerations of space. These within-test correlations were quite comparable to those published elsewhere by the test authors. The factor analysis, of course, involved the complete correlation matrix.

TABLE 1
INTERCORRELATIONS BETWEEN THE SUBTESTS OF THE 16 PF AND CPI INVENTORIES

CPI Scales	16 PF Scales														
	A. Warmth, Socialable	B. Generational Intelligence	C. Emotional Stability	D. Dominance or Ascendancy	E. Strength or Supremego	F. Surgency	G. Superego	H. Adventurous	I. Sensitive- Ejective						
Dominance	.25	.06	.20	.32	.14	.14	.61	.12							
Capacity for Status	.13	.13	.28	.12	.11	-.03	.38	.13							
Sociability	.22	.07	.30	.26	.29	.13	.69	.11							
Social Presence	.09	.17	.32	.40	.44	-.20	.54	.02							
Self-Acceptance	.26	.05	.14	.35	.40	-.03	.58	.13							
Sense of Well-Being	.05	.07	.43	-.05	-.14	.18	.29	-.03							
Responsibility	-.01	.26	.14	-.18	-.35	.21	.11	.21							
Socialization	.08	.03	.29	-.22	-.17	.41	.12	.05							
Self-Control	.00	.09	.34	-.34	-.45	.27	.07	-.03							
Tolerance	-.01	.21	.37	-.02	.14	.12	.32	.06							
Good Impression	.10	.04	.40	-.17	-.19	.22	.33	-.03							
Community	.04	.01	-.04	-.09	-.09	.20	.04	.06							
Achievement via Conformance	.02	.13	.31	-.09	-.26	.29	.28	.48							
Achievement via Independence	-.10	.31	.05	-.08	-.19	-.16	.05	.18							
Intellectual Efficiency	.01	.30	.32	.08	-.09	.02	.29	.15							
Psychological-mindedness	-.14	.25	.20	.18	-.12	-.02	.23	.02							
Flexibility	-.05	.14	-.08	.15	.18	-.52	.01	.15							
Femininity	.16	.05	-.26	-.34	-.13	.15	-.04	.51							

Note: To facilitate clarity decimal points have been removed from all correlations.

TABLE 1 (*continued*)
INTERCORRELATIONS BETWEEN THE SUBTESTS OF THE 16 PF AND CPI INVENTORIES

CPI Scales	16 PF Scales
M. Bohemian	O. Guilt Proneness
I. Paranoid	N. Shrewdness
L. Tendency	O ₁ . Radicallism
M. Introverted	O ₂ . Self-Sufficiency
P. Extraverted	O ₃ . High Self-Information
S. Conformity	O ₄ . High Egoistic Tension

Note: To facilitate clarity decimal points have been removed from all correlations.

the Dominance and Sociability scales of the CPI (20, p. 33). Equally reasonable are the correlation of .41 between CPI Socialization and 16 PF Superego Strength and the correlation of .51 between CPI Femininity and 16 PF Sensitive-Effeminate. Somewhat less evident is the explanation for the correlation of —.40 between the CPI Responsibility and the 16 PF Paranoid Tendency scale. Perhaps the most interesting correlation of the group, however, is the correlation of —.52 between the CPI Flexibility scale and the 16 PF scale of Superego Strength. Apparently what is one man's "Superego Strength" is another man's lack of "Flexibility," depending on the test author's conceptual orientation or labeling proclivities.

The eight CPI scales that were each correlated .40 or higher with from two to five 16 PF scales are listed below, along with the 16 PF scales with which they were correlated:

CPI Social Presence was positively correlated with 16 PF Dominance, Surgency, and Adventurous.

CPI Self-Acceptance was positively correlated with 16 PF Surgency and Adventurous.

CPI Sense of Well Being was positively correlated with 16 PF Emotional Stability and High Self-Sentiment Formation and negatively correlated with Paranoid Tendency, Guilt Proneness, and High Ergic Tension.

CPI Self-Control was positively correlated with 16 PF High Self-Sentiment Formation and negatively correlated with Surgency, Paranoid Tendency, Guilt Proneness, and High Ergic Tension.

CPI Tolerance was negatively correlated with 16 PF Paranoid Tendency, Guilt Proneness, and High Ergic Tension.

CPI Good Impression was positively correlated with 16 PF Emotional Stability and High Self-Sentiment Formation and negatively correlated with Paranoid Tendency, Guilt Proneness, and High Ergic Tension.

CPI Achievement via Conformance was positively correlated with 16 PF Sensitive-Effeminate and High Self-Sentiment Formation and negatively correlated with Guilt Proneness and High Ergic Tension.

CPI Intellectual Efficiency was negatively correlated with 16 PF Sensitive-Effeminate, Guilt Proneness, and High Ergic Tension.

Many of these correlations represent predictable relationships that offer at least presumptive evidence of the construct validity of some of the scales in both instruments. They also serve to implement the interpretations of these scales. A careful extended analysis, however, will reveal that some relationships that might have been hypothesized were not confirmed by the data. This is particularly true for the CPI scales of Social Presence, Self-Acceptance, and Good Impression.

The 36 correlations of magnitude .40 or higher in the matrix may also be characterized in terms of the 16 PF scale variables involved. Represented among these 36 correlations are six 16 PF scales that were not correlated .40 or higher with any CPI scale, one 16 PF scale that met that criterion with a single CPI scale alone, and nine 16 PF scales that were correlated .40 or higher with from two to six CPI scales. The six 16 PF scales that were not correlated .40 or higher with any CPI scale were Cyclothymia (or Warm, Sociable), General Intelligence, "Bohemian Introverted," Shrewdness, Radicalism, and Self-Sufficiency. The finding for General Intelligence is not too surprising, inasmuch as this scale has no real counterpart in the CPI scales. But it is indeed strange that a scale which purports to measure the dimension of "warmness" and "sociability" has no high correlates among such CPI scales as Sociability, Social Presence, Socialization, Good Impression, or Communality. It is similarly strange that the "Shrewdness" scale, defined in terms of such adjectives as "sophisticated" and "polished," does not have higher correlates among many of these same CPI scales. More easily explained, perhaps, is the lack of high correlates for the "Bohemian Introverted" scale. As Cattell says in the 16 PF manual, "This is a subtle pattern, compelling one to adopt in the rating . . . complex phrases instead of common terms" (6, p. 16). It may well be that such a subtle, complex pattern as this cannot by its very nature be highly correlated with any single variable or limited number of variables. Yet the mere fact of its complexity tends to bring up some fundamental questions regarding its factorial unity. Perhaps these same remarks may apply with equal force to the Radicalism and Self-Sufficiency scales.

The one 16 PF scale that met the correlational criterion of .40 or higher with respect to only one CPI scale was the scale of Dominance or Ascendance. This scale had a correlation of .40 with the Social Presence scale of the CPI, but all of its correlations with other CPI scales were lower. The most surprising finding in this situation is that this 16 PF Dominance scale is correlated only .32 with the Dominance scale of the CPI! The CPI Dominance scale, it will be recalled, had only one correlation of .40 or higher among the 16 PF scales, and that was a correlation of .61 with the 16 PF Adventurous scale. Perhaps there are dominant people and dominant people! There is some suggestion in the data that Gough's dominant man is relatively friendly, congenial, sociable, and not overbearing; Cattell's dominant man is hard, stern, tough, and not overly ingratiating. Counselors of the future might well pause in their prognostications to determine whether they have a Gough-dominant or a Cattell-dominant man on their hands. It seems likely that their prognoses should be quite different in the two cases.

The nine 16 PF scales that were correlated .40 or higher with from two to six CPI scales are listed below, along with the CPI scales with which they were correlated:

16 PF Emotional Stability was positively correlated with CPI Sense of Well-Being and Good Impression.

16 PF Surgency was positively correlated with CPI Social Presence and Self-Acceptance and negatively correlated with Self-Control.

16 PF Superego Strength was positively correlated with CPI Socialization and negatively correlated with Flexibility.

16 PF Adventurous was positively correlated with CPI Dominance, Sociability, Social Presence, and Self-Acceptance.

16 PF Sensitive-Effeminate was positively correlated with CPI Achievement via Conformance and Femininity.

16 PF Paranoid Tendency was negatively correlated with CPI Sense of Well-Being, Tolerance, Good Impression, Intellectual Efficiency, Responsibility, and Self-Control.

16 PF Guilt Proneness, referring to characteristics like anxiety and insecurity, was negatively correlated with CPI Sense of Well-Being, Tolerance, Good Impression, Intellectual Efficiency, Achievement via Conformance, and Self-Control.

16 PF High Self-Sentiment Formation was positively correlated with CPI Sense of Well-Being, Good Impression, Achievement via Conformance, and Self-Control.

16 PF High Ergic Tension was negatively correlated with CPI Sense of Well-Being, Tolerance, Good Impression, Intellectual Efficiency, Achievement via Conformance, and Self-Control.

Again it would seem that many of these correlations represent predictable relationships that offer some degree of confirmatory evidence for some of the constructs represented in both sets of scales. And again the correlations offer useful information for the interpretation of both sets of scales. In contrast to the CPI, however, the 16 PF scales seem to involve fewer cases in which possible hypothesized relationships are not confirmed by the data. Yet a more detailed analysis of the data would reveal *unpredicted* relationships that furnish interesting food for thought. For example, it is noteworthy that the 16 PF Surgency scale has low but significant *negative* correlations with the CPI Sense of Well-Being, Socialization, and Good Impression scales.

The factor analysis of the correlation matrix just interpreted furnished the data required for an analysis of the second-order domain of the two instruments.³ Table 2 shows the factor matrix which resulted when the centroid matrix was rotated to orthogonal simple structure. As indicated

³ See footnote 2.

TABLE 2
ROTATED FACTOR MATRIX FOR THE SUBTESTS OF THE CPI
AND 16 PF PERSONALITY INVENTORIES

Scale	I	II	III	IV	V	VI
CPI Scales						
Dominance	24	64	12	.08	.27	.33
Capacity for Status	28	48	23	.02	-.05	.03
Sociability	23	80	25	.02	.21	-.01
Social Presence	.08	69	37	-.18	-.28	-.06
Self-Acceptance	-.08	79	10	.04	.10	-.01
Sense of Well-Being	62	18	40	-.13	.22	-.14
Responsibility	.43	-.01	47	.27	.33	.09
Socialization	.40	.07	16	.06	.52	-.31
Self-Control	.84	-.25	24	.06	.19	-.01
Tolerance	.60	.17	63	.03	.02	-.09
Good Impression	.86	.10	11	.04	.08	.06
Communality	-.08	.11	19	.08	.43	-.26
Achievement via Conformance	.61	.17	38	.05	.39	.10
Achievement via Independence	.32	-.01	65	.22	-.25	.03
Intellectual Efficiency	.45	.28	70	.04	.07	-.01
Psychological-mindedness	.32	.15	50	-.08	-.06	.36
Flexibility	-.05	.03	22	.09	-.70	-.03
Femininity	.02	-.01	02	.69	.19	-.19
16 PF Scales						
A. Warm, Sociable	13	38	-.31	.16	.04	-.11
B. General Intelligence	.02	.04	.42	.06	-.05	.07
C. Emotional Stability	.52	.23	.07	-.49	.01	-.18
E. Dominance or Ascendance	-.23	.48	.07	-.26	-.22	.34
F. Surgency	-.21	.56	-.19	-.14	-.31	-.22
G. Superego Strength	.19	-.03	-.13	-.05	.65	-.11
H. Adventurous	.29	.79	-.04	-.02	.02	.11
I. Sensitive-Effeminate	-.03	.15	.09	.71	-.07	.04
L. Paranoid Tendency	-.53	-.13	-.26	.00	.03	.23
M. Bohemian Introverted	-.23	-.02	.10	.58	-.22	.16
N. Shrewdness	.11	.24	-.09	-.35	.01	.29
O. Guilt Proneness	-.65	-.29	-.04	.40	.02	-.09
Q ₁ . Radicalism	-.03	.10	.13	-.02	-.16	.60
Q ₂ . Self-Sufficiency	-.22	-.34	.18	.10	-.04	.40
Q ₃ . High Self-Sentiment Formation	.60	.08	-.05	-.22	.35	.08
Q ₄ . High Ergic Tension	-.80	-.13	-.02	.21	-.02	.02

Note: To facilitate clarity decimal points have been removed from all loadings. earlier, six factors were isolated. The interpretations of these six factors were as follows:

Factor I has high positive loadings for the CPI scales called Sense of Well-Being, Self-Control, Tolerance, Good Impression, and Achievement via Conformance. It has high positive loadings for the 16 PF scales called High Self-Sentiment Formation and Emotional Stability, and high negative loadings for the 16 PF scales of Paranoid Tendency, Guilt Proneness, and High Ergic

Tension. In an earlier factor analysis of the CPI alone, Mitchell and Pierce-Jones (25) interpreted a factor with a very similar pattern of CPI loadings as that of "Adjustment by Social Conformity." The 16 PF loadings for this factor now shed new light on the nature of that factor and on the nature of the relationship between the two instruments, for these 16 PF loadings in their inverted form very closely parallel the high loadings for the second order "Anxiety" factor that was identified by Cattell from his analyses of the 16 PF inventory (6, p. 46-47). Thus, although the first order domains of the two instruments are quite at variance with one another, this initial second-order factor describes a broad and important dimension that is common to the two instruments. This second-order dimension apparently defines a general adjustment factor, and the label one attaches to it depends upon whether one chooses to emphasize the positive or negative poles of the dimension. The positive pole suggests an adjustment to the demands of one's environment that is characterized by conformity, self-control, success, satisfaction, and lack of anxiety or tension. The negative pole suggests such an inability to adapt to these demands that the primary syndrome is one of tension, anxiety, and insecurity. With these considerations in mind, it seems most appropriate to identify this factor as a "General Adjustment" factor and then to equate the negative pole of this dimension with Cattell's second-order "Anxiety" factor.

Factor II has high positive loadings for the CPI scales of Dominance, Capacity for Status, Sociability, Social Presence, and Self-Acceptance. It has high positive loadings for the 16 PF scales of Adventurous, Surgency, and Dominance. In an earlier factor analysis of the CPI alone, Mitchell and Pierce-Jones (25) interpreted a factor with a very similar pattern of CPI loadings as that of "Social Poise or Extroversion." The present 16 PF loadings offer additional confirming evidence that the second factor of this analysis should be interpreted as an "Extroversion" factor. Again the pattern of the 16 PF loadings has some parallel with the loadings for one of the second-order factors identified by Cattell from his analysis of the 16 PF inventory. In this case the second-order factor is Cattell's Introversion-Extroversion factor (6, p. 47), and while there are a few more inconsistencies between the loading patterns than was characteristic of the earlier situation, still there is little doubt that this is fundamentally the same factor. Here again we have a second-order factor that describes a broad and significant dimension that is common to the two instruments.

Factor III has high positive loadings for the CPI scales of Tolerance, Achievement via Independence, Intellectual Efficiency, Responsibility, and

Psychological-mindedness. It also has a relatively high positive loading for the 16 PF scale called General Intelligence. A review of the test authors' descriptions of these scales suggest that this factor might best be called "Intellectual Resourcefulness," for the individual scoring high on this factor would presumably be very intelligent, clear thinking, efficient, observant, resourceful, alert and well-informed, independent, foresighted, would place a high value on intellectual matters, and would have broad and varied interests.

Factor IV has a high positive loading for the CPI scale called Femininity. It also has high positive loadings for the 16 PF scales called Sensitive-Effeminate and "Bohemian Introverted," and a relatively high negative loading for the 16 PF scale of Emotional Stability. Most noteworthy here is the fact that the "Bohemian Introverted" scale of the 16 PF, which Cattell found to be ". . . the most central factor in the second order introversion factor. . ." (6, p. 16) has no loading for that factor in the present analysis but combines with the other scales mentioned to define a factor with quite different characteristics. The present factor seems to differentiate the tough-minded, hard-headed, realistic, practical, strongly "masculine" type of person from the imaginative, sensitive, intensely subjective, and somewhat unstable and anxious person. This dichotomy suggests a strong parallel to the "tender vs. tough-minded" continuum postulated by William James, and indeed the data suggest that this label would not be entirely inappropriate in this case. Equally appropriate, perhaps, would be the designation "Masculinity-Femininity," since the authors' descriptions of the scales with the two highest loadings for this factor both include references to behaviors and characteristics that are regarded as predominantly "feminine" as opposed to more "masculine" characteristics. Such a label, however, would capture some of the meaning of this factor but would also miss some equally important aspects of its essential nature. In view of these considerations it would seem most reasonable to develop a more comprehensive descriptive label that would capture more of the meaning of this factor by placing emphasis on both aspects of its factorial bipolarity. We shall therefore refer to this factor as "Emotional Sensitivity vs. Masculine Tough-Mindedness."

Factor V has a high positive loading for the CPI scale called Socialization and an even higher but negative loading for the CPI Flexibility scale. It also has a high positive loading for the 16 PF scale called Superego Strength. The adjectives used by the test authors to describe these scales suggest that the person who scores high on this factor is methodical, persistent, well-organized, strongly self-controlled, and so conscientious and conscience-

directed as to be rather rigid on matters of manners, morals, and customs. The pattern of inflexible conformity to conventional standards is certainly important here, but this is also combined with an evident personal concern about moral rectitude and an accompanying strong sense of moral responsibility and accountability. This suggests that the present factor might best be designated as Superego Strength.

Factor VI may be a residual or error factor of no importance, for its only loading of any consequence is that for the 16 PF scale of Radicalism. It might be argued that the factor defines a factorial dimension of radicalism, rebelliousness, or rejection of prevailing social standards, but what evidence there is is tenuous at best and might better be discounted for the time being.

D. DISCUSSION

This analysis has provided some interesting insights with regard to the two investigative issues that were earlier described as the major aims of the study. The first-order analysis established rather conclusively that the allocation of the first-order test space was quite different for the two instruments, and yet their subtest correlations offered generally favorable evidence of the construct validity of the subtests in terms of the interpretive constructs posited by the test authors themselves. This suggests that there are many ways of slicing the first-order cake, and one's choice of constructs must depend not only on their factorial purity but also on their general usefulness, interpretability, and relationships to external criteria. A construct may be factorially complex, but it may have to predict an equally complex external criterion. Yet it may be so complex that it is slightly related to many criteria but highly related to none. Contrariwise, a construct may be so factorially "pure" that it has little relationship to the complex behaviors that would define a useful external criterion. All of these possibilities and many others are probably represented by one or another of the constructs defined by the CPI and 16 PF instruments of the present analysis. In the face of such considerations one might well hesitate to evaluate any given construct until one knew both its intended function and the setting in which it would perform that function.

Although the subtest correlations generally provided evidence of construct validity and valuable information for interpretive purposes, they also provoked some relatively important issues about certain aspects of the data. If the subtests of the 16 PF can be assumed to be factorially "pure," then their correlations with the CPI subtests offer rather unequivocal evidence of the factorial complexity of many CPI scales. Perhaps it is the factorial complexity

of these CPI scales that is responsible for the generally high intercorrelations reported by the test author for subtests within the CPI battery (20, p. 33), and for difficulties in interpreting CPI profiles reported from other sources. This factorial complexity of the CPI has its parallel in the semantic complexity of some of Cattell's descriptions of the 16 PF scales, and in the case of scales like the "Bohemian Introverted" scale, which Cattell admits is a "subtle pattern" requiring "complex phrases," one wonders if the semantic complexity doesn't mirror an underlying factorial complexity that was not fully revealed in the analyses conducted.

Another important issue stimulated by the present analysis is whether certain revealed relationships and certain predicted (but unconfirmed) relationships suggest new insights about the variables involved or are simply artifacts due to errors in assigning labels to scales. The amount of validity evidence accumulated for both of these scales suggests the unlikelihood of many instances of the latter, and undoubtedly the facts revealed about the correlates of the 16 PF Surgency scale, for example, have important implications for the interpretation of that concept. But for other facts revealed in the analysis, such as the lack of relationship between the two dominance scales, the negative relationship between Flexibility and Superego Strength, and the absence of predicted relationships for certain CPI scales, the data seem to demand serious reconsideration of both the actual nature and meaning of certain scales and the appropriateness of the descriptive label (or labels) assigned to them. The lack of confirmation for possible hypothesized relationships seems to be especially characteristic of the CPI, but it is not confined to the CPI alone. Each case must be judged on its own merits, with an open-minded willingness to change interpretations and/or labels in the light of new evidence.

It is most noteworthy that although the allocation of first-order test space was quite different for the two instruments, their second-order domains were much more congruent. No artifactual "test factor" appeared whose loadings were restricted to one of the instruments alone. Noteworthy also is the fact that two of these second-order factors—the General Adjustment (vs. Anxiety or Neuroticism) factor and the Introversion-Extroversion factor—were factors that have consistently reappeared in the second-order domains of many different analyses involving many different instruments (6, 10, 25). It may well be that even though personality inventories may subdivide their first-order test space in many diverse ways, their second-order domains may be characteristically more congruent, a state of affairs attributable to the repeated appearance of these two second-order factors in the factorial make-up of so

many different instruments. If this judgment is correct, it brings up some important issues concerning the desirability or efficacy of such assessment at the more specific first-order level when there is a very real possibility that these two second-order factors are more important, more reliable, more economical of time, and perhaps even more efficacious from a predictive point of view.

In the case of the present analysis, however, there were three other second-order factors that were also deserving of careful consideration: Intellectual Resourcefulness, Superego Strength, and Emotional Sensitivity vs. Masculine Tough-Mindedness. These factors have not appeared as regularly in other reported analyses as have the General Adjustment vs. Neuroticism and Introversion vs. Extroversion factors, and yet these dimensions seem to make considerable psychological sense. One is tempted to say that they make more psychological sense than many of the original scales. When these three are combined with the first two factors, the resulting five factors constituting the second-order domain define a set of dimensions that would be difficult to surpass in terms of their potentiality for characterizing the essential nature of an individual's total adjustment pattern.

E. SUMMARY

Gough's California Psychological Inventory and Cattell's 16 PF were administered to 291 sophomore college students. A correlation matrix was prepared consisting of the intercorrelations between all of the scales from both instruments, and these correlations were analyzed to determine the nature of the relationships between the first-order dimensions of the two instruments. The matrix was then factor analyzed and rotated to simple structure, and the resulting factor matrix was analyzed to determine the comparability of the second-order dimensions of the two instruments.

Analysis of the correlation matrix revealed that four CPI scales were not correlated .40 or higher with any 16 PF scale, that six CPI scales were correlated .40 or higher with only one 16 PF scale, and that eight CPI scales were correlated .40 or higher with from two to five 16 PF scales. When the same intercorrelations were analyzed in relation to the 16 PF, it was found that six 16 PF scales were not correlated .40 or higher with any CPI scale, that one 16 PF scale met that criterion with a single CPI scale alone, and that nine 16 PF scales were correlated .40 or higher with from two to six CPI scales. Results were interpreted as indicating that there was considerable incongruence in the first order domains of the two instruments, that in spite of this incongruence the correlations provided generally favorable evidence of

the construct validity of the scales, that there was evidence of much factorial complexity in many of the CPI scales, and that some of the correlations brought out the need for a reconsideration of the nature and meaning of some of the scales or of the appropriateness of the labels assigned to them.

Analysis of the factor matrix revealed that the second-order domains of the two instruments were more coextensive than for the first order, with each instrument playing a major role in defining five basic factors: General Adjustment (vs. neuroticism), Introversion-Extroversion, Intellectual Resourcefulness, Emotional Sensitivity vs. Masculine Tough-Mindedness, and Super-ego Strength. It was noted that the first two factors have repeatedly appeared in the second-order analyses of many different instruments, and that this suggested that even though personality inventories may subdivide the first-order test space in many diverse ways, their second-order domains may be characteristically more congruent. When these two factors are combined with the other three factors, the resulting set of five second-order factors define a very useful set of dimensions for characterizing the total adjustment pattern of any given individual.

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GROUP EFFECTIVENESS, COERCION, CHANGE, AND COALESCENCE AMONG DELINQUENTS COMPARED TO NONDELINQUENTS*¹

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A. INTRODUCTION

In *Leadership, Psychology and Organizational Behavior* (2, Chapter 13), it was suggested that members see the group as more able to cope with problems compared to the lone individual. Thus, once known, group decisions can persuade members. And, if each member is susceptible to influence, and is subjected to the same valued suggestion as every other member, it follows that all will tend to accept this same suggestion. Members' behavior and attitudes will shift in the same suggested direction.

In addition, the group is a collection expected to reward or avoid punishment for its members. The collection, as such, has control of what can reward its members. If motivation is strong for the rewards or avoidance of punishment, the collection has power to coerce its members. The more the members expect rewards or the avoidance of punishment from the group, the more they are attracted to the group. Therefore, the attractive group has the power to coerce its members.

Early studies by Moore (11) and Wheeler and Jordan (15) and many others clearly demonstrated the tendency of members of a group to shift attitudes and behavior in the direction of the majority or modal or statistically normal behavior.

In recent years, Asch (1) has shown that conformity to a simulated group opinion can be induced even where the group decision defies the senses. A fair proportion of subjects will agree that the clearly shorter of two lines is longer if they see all the other persons (stooges) in the same situation stating that the shorter line is the longer one. Bass and associates have found con-

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sistently that rank order judgments of members almost always are more highly correlated after a discussion than before. The members increase in agreement, conforming more to each others' opinions both publicly and privately. Similar results were reported by Hare (6) and McKeachie (10). Again, Gorden (5) observed that among 24 members of a cooperative living project, members conformed to their conception of the group's opinion when giving their public opinion. The typical pattern was for the individual to compromise between his private opinion and his conception of the group opinion when he expressed himself publicly. In short, Gorden saw how a group can coerce its members as well as persuade them.

Hollingshead (8) mentioned the power dynamics resulting in conformity within the adolescent clique. If you wanted to join the clique, you had to conform to clique standards. After being admitted, you had to conform if you wanted to remain a member of the clique. Faris (4) agreed that we conform to remain in a group in which membership is rewarding. The other members may demand conformity because it is perceived to be a way of avoiding discord and dissatisfaction.

Many have commented on the service rendered by gangs of delinquent juveniles to their members as substitute families (13). Inconsistent, harsh, repulsive parental treatment (or lack of any parental concern) drive the juvenile to see other avenues of emotional support and security. The juvenile gang offers support, opportunity for excitement, revenge against authority as well as immediate material rewards from thefts and protection money. Thrasher (14) noted that it did little to remove a delinquent from an undesirable gang unless you could provide him with a socially better one acceptable to him. He felt that the attractiveness of the gang was so strong that we would be better to try to change the antisocial mores of the gang.

Similar arguments may apply to the slum clique. Thus, Harvey (7) observed "greater solidarity" among cliques from slums than from higher socioeconomic areas.

While the delinquent may be *antisocial*, we infer that he is not *antisocial*. On the contrary, it was expected that institutionalized juvenile delinquents would be more sensitive to pressure from their own delinquent peers than matched nondelinquent high school boys. It was hypothesized that compared with normal boys delinquents would show within their groups more coalescence, more coercion and less personal stability of opinion.

B. METHOD

A total of 120 boys aged 14 to 17 were examined in groups of five on each of 10 problems about the rank order of five American cities according

to the 1950 Census. The 24 groups consisted of three at each of four age levels, 14, 15, 16 and 17 for both delinquents and nondelinquents matched by individuals in (Otis Gamma) intelligence. The 60 delinquents resided in a state correctional school. The 60 nondelinquents attended a small town public high school in the same Southern state. In a preceding unpublished study of these same 120 boys, no significant differences associated with delinquency were found in response to reward in individual learning situations.

The problem content was identical to that used by Pryer and Bass (12). Members of a group first privately ranked on "mark-sense" cards the cities in order of size. Then they discussed the issue about three to four minutes reaching a group decision. Finally, they made another private ranking of the same cities.

C. ANALYSES

1. *Agreement, Coalescence, Coercion, and Stability*

The mean rank difference correlation (*rho*) among members' initial rank order judgments indexed a group's *initial agreement* on a single problem. Similarly, the average rank order correlation among members' final private judgments was a gauge of the group's *final agreement*. The increase in agreement from initial to final private rankings was the *private coalescence* of members.⁵

The mean rank difference correlation between members' final judgments and the group decision indicated their agreement with the group decision. *Public coalescence* was the extent this acceptance of the group decision was greater than the average initial agreement among members of a group. *Coercion* of members by the group was assumed to be greater the more they accepted or agreed with the group decision than they agreed privately with each other finally.

The average extent the group decision agreed with members' initial opinions was given by their rank difference correlation; similarly the average *stability* of members of a group was the average correlation of their initial and final private rank order judgments.

Values were obtained and averaged for each group for all 10 problems as

⁵ If X refers to any prediscussion ranking and Y to any ranking after discussion, then the private coalescence of members = $\bar{\rho}_{YY} - \bar{\rho}_{XX}$. Their average stability = $\bar{\rho}_{XY}$. If the group decision about the rank order is G , then $\bar{\rho}_{GX}$ is the mean relation of the group decision to members' initial opinions and $\bar{\rho}_{GY}$ is how the group decision relates to their final opinion. Public coalescence = $\bar{\rho}_{GY} - \bar{\rho}_{XX}$ while coercion is shown by $\bar{\rho}_{GY} - \bar{\rho}_{YY}$. See Bass, Gaier *et al.* (3) for further details.

a whole. Table 1 shows the distribution of cases subjected to analyses of variance of groups, measure by measure. Table 2 summarized the *F* ratios obtained when the effects on the varying group means of age, delinquency and their interaction were examined.

a. Results. Nondelinquents agreed significantly more at the 1 per cent level with each other *initially* (.42) than did delinquents (.26). An *F* of

TABLE 1
NUMBERS OF SUBJECTS AND GROUPS AT EACH AGE

	14	15	16	17	Total
<i>Groups</i>					
Delinquents	3	3	3	3	12
Nondelinquents	3	3	3	3	12
Total	6	6	6	6	24
<i>Members</i>					
Delinquents	15	15	15	15	60
Nondelinquents	15	15	15	15	60
Total	30	30	30	30	120

TABLE 2
SUMMARY OF *F* RATIOS OBTAINED

Group behavior	<i>F</i> Ratio		
	Delinquent versus Nondelinquents 1/16	Age 3/16	Age X Delinquency 3/16
Average agreement initially	18.44**	9.69**	—
Average agreement finally	7.87*	5.50**	1.31
Average private coalescence	—	—	—
Average acceptance by members of the group decision	5.57*	5.51**	1.79
Average public coalescence	1.03	—	—
Average coercion	—	—	—
Average extent group decision agreed with members' initial opinions	16.26**	6.44**	2.72
Average stability of private opinion	4.32 ^c	2.30	—
Average initial private accuracy	6.05*	9.86**	3.82
Average final private accuracy	1.96	4.34*	2.06
Average private effectiveness	—	—	—
Accuracy of group decision	—	—	—
Average public effectiveness	3.07	—	—

Note: *F* ratios less than 1 are not shown.

** $p < .01$.

* $p < .05$.

^c $p < .06$.

18.44 was obtained for this variation according to the factorial analysis of variance summarized in Table 2. Regardless of delinquency, initial agreement increased significantly with increasing age as can be seen in Figure 1. Final private agreement showed a similar pattern.

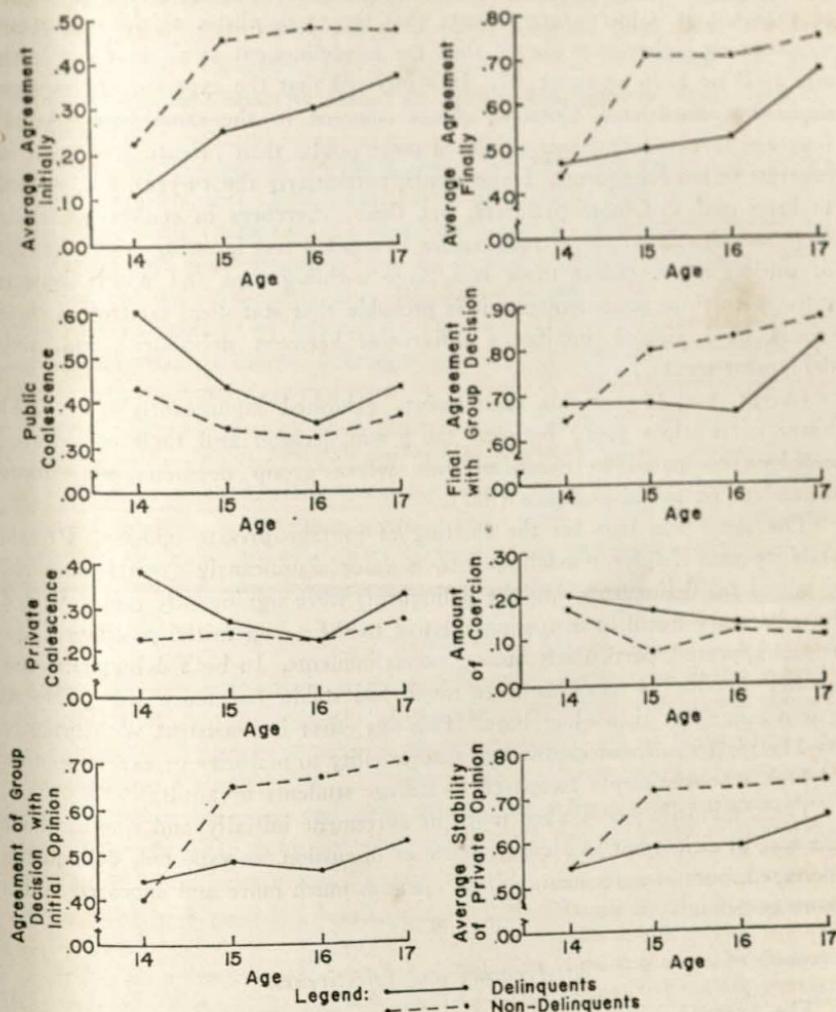


FIGURE 1
AGREEMENT, COALESCENCE, COERCION, AND STABILITY AMONG DELINQUENT
AND NONDELINQUENT BOYS FROM AGES 14 THROUGH 17

Average agreement with the group decision was significantly greater (at the 5 per cent level) among nondelinquents (.79) than delinquents (.70) but delinquents coalesced more (but not significantly) publicly (.44) at all four age levels compared to nondelinquents (.38). While public coalescence did not vary significantly according to the appropriate analysis of variance, it is interesting to note that the probabilities of the delinquent means being higher as predicted than the nondelinquent at all four age levels was $1/2^4$ or $1/16$ or about .07. It is inferred that the expected effects were slight but consistent. Coercive effects emerged in the same way. At all four age levels, delinquents exhibited more public than private agreement in contrast to nondelinquents. Delinquents, particularly the 14-year-olds, seemed to have coalesced more privately, but these differences in coalescence again were not significant for a conservative two-tailed test ignoring within-groups or subject error. (Since there is a large within-groups and within-subjects error with these measurements, it is probable that statistical control of these would have yielded significant differences between delinquent and non-delinquent means.)

Except for 14-year-olds, delinquents exhibited significantly ($p < .01$) lower correlations (.47) between the group decision and their own initial decisions compared to nondelinquents whose group decisions were more dependent on initial positions (.60).

The same was true for the shifting of average private opinion. Private stability was .73 for nondelinquents, a value significantly greater than .62 obtained for delinquents, i.e., the delinquents were significantly more affected by what they heard in discussion relative to their own initial positions. Age trends appeared, particularly among nondelinquents. In both delinquents and nondelinquents, 14-year-olds were much less stable (or more susceptible to group influence) than older boys. This age effect is consistent with findings by Marple (9) of more individual susceptibility to majority or expert opinion of high school students compared to college students or adults.

Thus, nondelinquents were more in agreement initially and finally about the size of cities; but as a consequence of discussion, as expected, delinquents increased more in agreement, shifted opinions much more and appeared under more coercion.

2. Accuracy and Effectiveness

The average initial private accuracy of a group was the average extent its members' initial rank judgments of city populations agreed with the true order of size of the cities (as given by the 1950 Census) on a single

problem.⁶ Results were then averaged for all 10 problems. Final private accuracy was the corresponding average correlation between final judgments and the true order of cities. The accuracy of the group decision was gauged similarly.

A group's *private effectiveness* or the profitability of its discussion was reflected in the extent average final opinion was more accurate than average initial opinion. Similarly, public effectiveness was the extent the group decision was more accurate than the average accuracy of initial judgments of members.

a. *Results.* As seen in Figure 2, initial accuracy was significantly greater among nondelinquents (.44 versus .33) and among older boys. A differential age trend (reflected in a significant age \times delinquency interaction) suggested that nondelinquents are at a higher level of accuracy by 15 not attained by delinquents until 17. (This is consistent with the general scholastic retardation of delinquents and may help account for the greater initial disagreement among delinquents about these problems in geography.) Final private accuracy showed a similar but not identical pattern.

Again, discussions with their peers seemed to affect delinquents more, but not significantly so. Delinquents profited slightly more at every age level both publicly and privately from discussions according to their respective increases in public and private accuracy from before to after the discussions. Despite their initial disadvantage (.44 versus .33), delinquents emerged with almost as accurate group decisions as nondelinquents (.56 versus .54).

3. Conclusions

Although nondelinquents were significantly more in agreement before and after discussion, delinquents increased more in agreement as a consequence of discussion. Delinquents seemed more coerced by their peers than nondelinquents at all age levels. Delinquents shifted their opinions significantly more following discussion and group decision than did nondelinquents. While nondelinquents were more accurate, prior to discussion, delinquents profited more in accuracy from group discussion.

The hypothesis generally was supported that delinquents are more sensitive

⁶ If R is the actual city rank according to the 1950 Census, then $\bar{\rho}_{GR}$ is the accuracy or correctness of the group decision about the rank order, $\bar{\rho}_{RX}$ is the mean initial accuracy and $\bar{\rho}_{RY}$ the mean final accuracy of members, while $\bar{\rho}_{GR} - \bar{\rho}_{RX}$ is the group's public effectiveness and $\bar{\rho}_{RY} - \bar{\rho}_{RX}$ is the group's private effectiveness (how much each member improved as a consequence of the discussion).

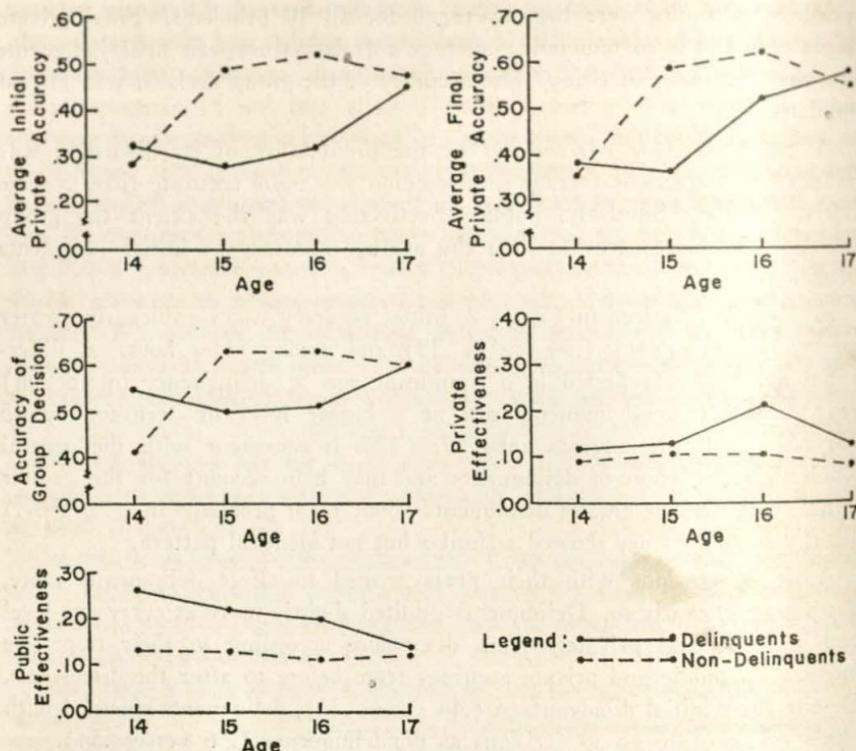


FIGURE 2
ACCURACY AND GROUP EFFECTIVENESS OF DELINQUENT AND NONDELINQUENT BOYS
FROM AGES 14 THROUGH 17

to the effects of interaction with their peers; they coalesce more, they shift their opinions significantly more; they profit more in accuracy and they are more coerced by their peers, accepting the opinions of others more publicly than privately at all age levels examined. While both delinquent and nondelinquent adolescents, particularly the younger boys, are sensitive to their peers' judgments, it would appear that delinquents, even more than nondelinquents, are likely to respond to suggestion to change, if the suggestions come from peers during discussion and if group decisions are permitted. The results are consistent with observations about the significance of the gang to the delinquent and suggest that changing attitudes and reeducating delinquents will be facilitated by judicious use of their own peer groups.

At first glance, it could be argued that the observed differences between delinquents and nondelinquents in coalescence, stability and effectiveness could be accounted for by their initial differences in agreement and accuracy. Since delinquents were less accurate initially and less in agreement prior to discussion, they had "more room" to increase in agreement and accuracy and to change. If this agreement were completely true, it still would mean from a practical point of view, that on those issues (no doubt including most academic, moral and intellectual) on which delinquents are inadequate individually relative to nondelinquents, group discussions among peers will produce relatively more change and improvement among delinquents. Many studies attest to the efficacy of group approaches to training. We suggest that such approaches have even greater than usual payoff with delinquents, perhaps partially because they have more to accomplish in comparable training.

But the argument is inadequate to account for the various differential results obtained at the four levels of age. Consider the differences between delinquent and nondelinquent 14-year-olds, and the differences between delinquent and nondelinquent 17-year-olds with respect to their initial agreement and subsequent stability. There was a difference of about .12 in initial agreement between delinquents and nondelinquents of both age groups. Yet, there was no difference among 14-year-olds in stability while among 17-year-olds, delinquents shifted opinions significantly more than nondelinquents. The same occurred for agreement of the group decision with initial opinion whose age pattern was completely different from the observed means in initial agreement. Again, the age differentials in final agreement were of an almost completely different pattern than the age differentials between delinquents and nondelinquents in initial agreement. Numerous other discrepancies of this sort can be cited. Differences in initial agreements were about the same for both 15- and 16-year-olds, yet the differences between delinquents and nondelinquents in public coalescence was much greater among 15-year-olds than 16-year-olds. The greatest observed differences between delinquents and nondelinquents in public effectiveness occurred among 14-year-olds, and the least difference occurred among the 17-year-olds; yet for both 14- and 17-year-olds, little or no difference existed between delinquents and nondelinquents initially in accuracy.

Of course, each measure is not independent of every other measure and many of the observed relations could be attributed to initial differences. For example, final private accuracy was obviously dependent to some extent on initial private accuracy but we cannot account for *all* the differential changes

associated with age and delinquency status occurring from before to after discussion by observed differences prior to discussion.

D. SUMMARY

The hypothesis was tested that institutionalized delinquents are more susceptible to peer group influence than nondelinquent boys matched in intelligence and age. Three groups of five delinquents at each of four age levels: 14, 15, 16 and 17, were contrasted with 12 corresponding groups of boys from a small town public high school. Each member of each group privately ranked five cities according to their estimated size. A discussion followed in order to obtain a group decision. Then a final private decision was recorded by each member. Rank order correlations within and between members were the measures of agreement and accuracy used to test the hypothesis.

Although nondelinquents were significantly more in agreement before and after discussion, delinquents increased more in agreement as a consequence of discussion, at all four age levels. Delinquents also seemed more coerced by their peers than nondelinquents at all age levels. Delinquents shifted their opinions significantly more following discussion and group decision than did nondelinquents. While nondelinquents were more accurate, delinquents profited more in accuracy from group discussion.

E. CONCLUSION

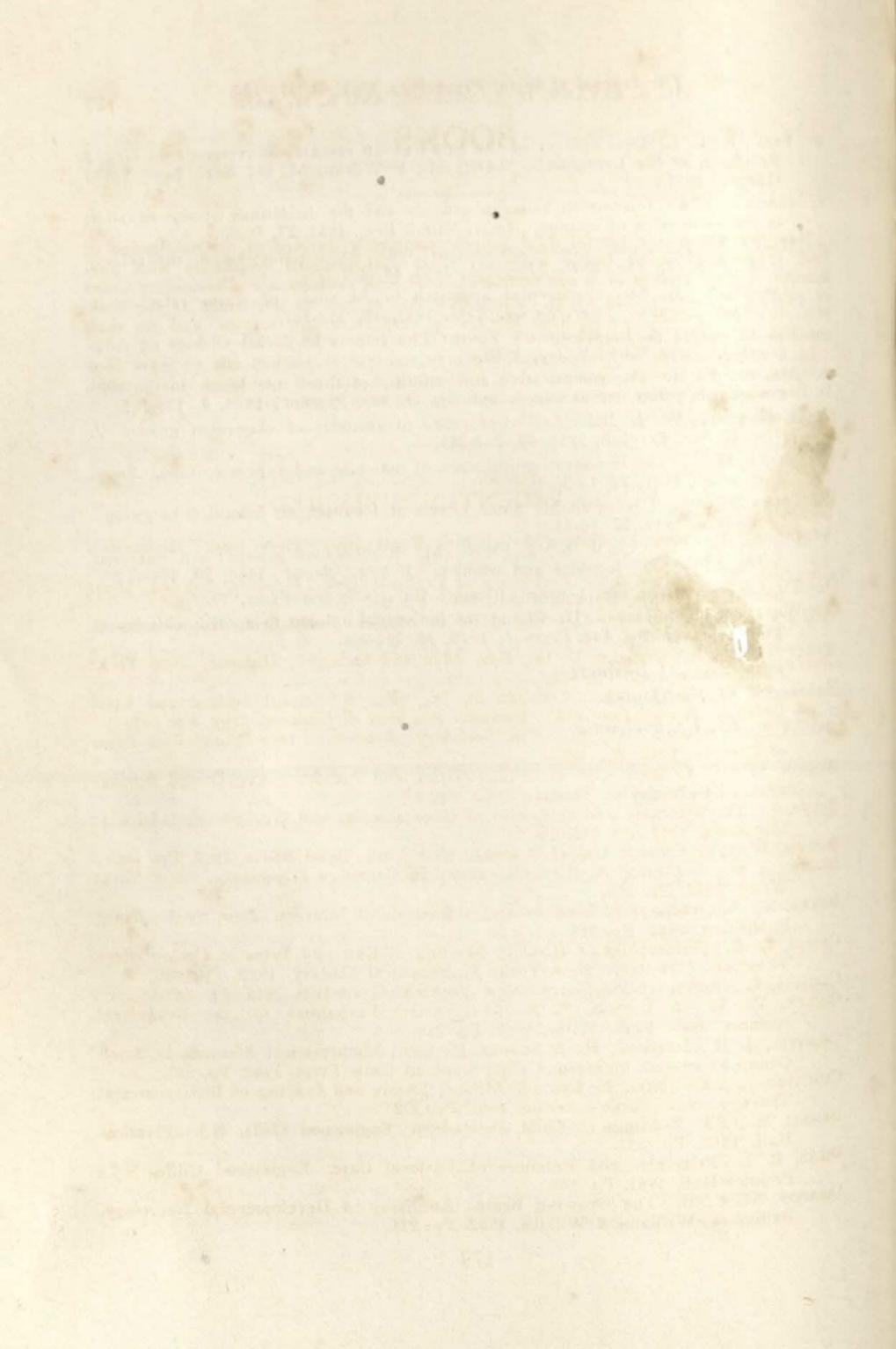
The hypothesis generally was supported that delinquents are more sensitive to the effects of interaction with their peers; they coalesce more at all four ages; they shift their opinions significantly more; they profit more in accuracy at all age levels, and they are more coerced by their peers, accepting the opinions of others more publicly than privately at all age levels examined. It would appear that delinquents, even more than nondelinquents, are likely to respond to suggestion to change, if the suggestions come from peers during discussion and if group decisions are permitted. The results are consistent with observations about the significance of the gang to the delinquent and suggest that changing attitudes and reeducating delinquents will be facilitated by judicious use of their own peer groups.

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STRATEGY IN GAMES AND FOLK TALES*¹

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A. INTRODUCTION

Earlier publications have shown that the three major divisions of games in culture (games of physical skill, games of strategy, and games of chance) have specific associations with child training practices and other cultural variables (11, 12). In these studies games were viewed as expressive models and both the players' involvement in them and the cultural support of them was explained in terms of a conflict-enculturation hypothesis (12). This hypothesis holds that conflicts induced by child training processes and subsequent learning lead to involvement in games and other expressive models which in turn provide buffered learning or enculturation important both to the players and to their societies. Since all games model competitive situations it was suggested also that these three classes of games represent different competitive or success styles (12, 14). The present study continues this general inquiry into models, but it is focused on the strategic mode of competition not only as it is modeled in games of strategy but also as it occurs in folk tales with strategic outcomes.

Folk tales and games are quite different media of expression, but they are similar in that they model or represent behaviors occurring in other settings, both real and imaginary. As models they belong to an extremely important cultural category which is both ancient in human culture (models appear in the Upper Paleolithic) and universally represented (no culture lacks models). The *model array* in any one culture may include representations in such diverse forms as graphic art, sculpture, drama, literature, toys, maps, plans, folk tales, games, and many more. In most, but not all societies, folk tales and games figure prominently in the model arrays and the study of these two types is a reasonable first step in the cross-cultural study of models.

All games model competitive situations, for a game can be defined as a

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recreational activity characterized by organized play, competition, two or more sides, criteria for determining the winner, and agreed-upon rules (11). Other recreational activities not satisfying these requirements are "amusements." Some folk tales resemble games in that they display definite outcomes with winners and losers, but other folk tales resemble amusements in lacking such outcomes. Folk tales of the latter type are excluded from this discussion. Indeed, this inquiry is strictly limited to those games and tales which display outcomes realized through the strategic mode of competition.

It is the general hypothesis of the present study that the strategic mode in folk tales will occur in the same general cultural setting as the strategic mode in games. Before proceeding to test this hypothesis, however, it is necessary first to outline the nature of the cultural setting in which games of strategy occur. While this outline is in part a repetition of statements made earlier (11), it is required by the large amount of new material now made available as a result of the adoption of the present system of game classification in the Ethnographic Atlas (8).

B. GAMES OF STRATEGY

The strategic mode of competition does not occur in all games (11). Strategy does not appear in any games of chance, pure physical skill, or physical skill and chance. Strategy is present as a minor mode in games of physical skill and strategy (e.g., football) and games of physical skill, strategy, and chance (e.g., tipcat). Strategy, however, is the *dominant* mode of competition in games of pure strategy (e.g., chess) and strategy and chance (e.g., poker). The strategic mode of competition, then, is most clearly modeled in games of pure strategy and games of strategy and chance and it is present as a minor mode in games of physical skill and strategy and games of physical skill, strategy and chance. It will be seen that while there are analogies to these game types in folk tales, there are not exact equivalents.

Not only is the strategic mode of competition limited to a few types of games, but the ethnographic distribution of games of strategy is limited. Of 141 tribes listed without qualification in the Ethnographic Atlas (8), eight were listed as having no games at all; 45 had only games of physical skill; 41 had games of physical skill and games of chance; three had games of strategy only; five had games of strategy and games of chance; 16 had games of physical skill and games of strategy; and 23 had games of physical skill, games of chance, and games of strategy. Only 33 per cent had games where strategy was a dominant mode of competition and another 61 per cent had games of physical skill with the possibility of the presence of the minor mode

of strategic competition. Since the cross-cultural data do not permit the assessment of the degree of strategic competition found in the widely distributed games of physical skill, the following discussion of the cultural environment favoring the modeling of the strategic mode of competition is based on the presence or absence of games of strategy.

An earlier study has shown that games of strategy are associated with high political integration and high social stratification: societies which are low in political integration and in social stratification are unlikely to have games of strategy (11). These findings support the generalization that tribes low in social complexity lack games of strategy while tribes high in social complexity have them.

The new data presented in the Ethnographic Atlas provide further support for this generalization. Societies possessing games of strategy are characterized by a low dependence on gathering, hunting, and fishing for subsistence, a higher dependence upon animal husbandry, and a high dependence upon agriculture. Table 1 shows the association between the presence of games of strategy and the more developed types of agriculture, particularly intensive agriculture.

TABLE 1
GAMES OF STRATEGY AND INTENSITY OF CULTIVATION

	e	Games of strategy Present	Games of strategy Absent
Absence of agriculture		2	32
Horticulture		0	14
Casual agriculture		1	6
Extensive agriculture		13	33
Intensive agriculture with irrigation		13	7
Intensive on permanent fields with avoidance of fallow		12	3

Over and above the subsistence base, it is clear that games of strategy are associated with relatively advanced and specialized technologies. Only three societies possessing games of strategy lack pottery and a majority possess weaving and leather working. The association with metal working, however, is most relevant (see Table 2). Metal working is often regarded as an indicator of cultural complexity. It is safe to say that every society possessing an advanced industrial organization also possesses games of strategy.

Further indication of the relationship between strategy and complexity is found in the relationship between the mean size of the local community and game types (see Table 3). Games of strategy are associated with large local communities. Only four of the 39 strategy societies were nomadic, seminomadic, or semisedentary, the others being sedentary in settlement

TABLE 2
GAMES OF STRATEGY AND METAL WORKING

	Games of strategy	
	Present	Absent
Metal working present	31	11
Metal working absent	1	58

TABLE 3
GAMES OF STRATEGY AND MEAN SIZE OF LOCAL COMMUNITY

Mean size of local community	Games of strategy	
	Present	Absent
50 or less	1	18
50-59	1	10
100-199	7	10
200-399	5	3
400-1000	3	4
1000+	2	0
Towns up to 50,000	5	1
Towns of more than 50,000	11	0

pattern. Twenty-one strategy societies lived in compact and relatively permanent settlements and four in complex settlements.

The societies possessing games of strategy are also distinguished by having jurisdictional levels beyond the local community:

Levels beyond Local Community	0	1	2	3	4
Games of Strategy Absent	66	26	2	0	0
Games of Strategy Present	5	10	14	9	4

Societies possessing games of strategy had high gods. Of the 36 tribes only seven lacked a high god. With 15 the high god was otiose and with four the high god was active. Finally, with 10 the high god was actively supporting human morality.

A more elaborate search of the literature would no doubt reveal other relationships. Freeman and Winch, for example, have arranged societies on a scale of societal complexity (6). With these cultures games of strategy do not tend to appear until the societies have "crimes punished by the government."

In sum, then, games of strategy are associated with high political integration, social stratification, animal husbandry, advanced agriculture, advanced technology (weaving, pottery, metal working, and industrialization), large settlements, more jurisdictional levels beyond the local community, high gods, and crimes punished by government. In associated research it is intended

to scale these and other items in terms of their significance for the development of the strategic mode of competition in culture. For the present it is enough to establish the relationship between games of strategy and cultural complexity.

Another aspect of the cultural environment which favors the modeling of the strategic mode of competition is the presence of certain characteristic types of child training. It has already been demonstrated that games of strategy are positively associated with obedience training both cross-culturally and within American culture (15). Games of physical skill are associated with achievement training and games of chance are linked with responsibility training, but neither type of game is correlated with obedience training, which is associated only with games of strategy.

The strategic mode of competition as modeled in games of strategy, then, is associated with societal complexity on the one hand and with obedience training on the other. The conflict-enculturation hypothesis may account for these relationships. One element of this hypothesis is the view that complex societies can function only if a significant number of adults are socialized to life in a complex system. These are adults who have learned when and how to obey and to disobey and, very importantly, when and how to command and not to command. Obedience training involving both reward and punishment is part of the socialization procedures designed to produce such fully participating adults in complex societies. This necessary training produces psychological conflicts which heighten drive and curiosity in this area and these in turn are assuaged by play with model social systems, i.e., games of strategy. In addition the play with the models also teaches the player such appropriate skills as the discernment and foresight he will need if he is to function later as commander, obeyer, or decision-maker.

The above data concerning the cultural setting in which games of strategy occur lead to the following specific applications of the general hypothesis presented in the introduction. Namely, *that if the strategic mode in folk tales occurs in the same general cultural setting as the strategic mode in games, it will be possible to establish relationships between strategic outcomes in tales and: (a) the presence of games of strategy in the same cultures; (b) political complexity; and (c) high obedience training.*

C. METHOD

The investigation of folk tales parallels the study of games, but it is much more exploratory and preliminary in character. It is argued, however, that this is one of the situations in which work with a small sample merits a

report in the scientific literature. The tales considered here were taken from a sample of folk tales prepared by Irving Child and his associates (4). Twenty-seven of the societies appearing in the folk-tale sample were also societies on which game scores existed at the time of the research. For each society the sample, except in a few instances, consisted of 12 selected tales purporting to be representative of the variety of tales found in that society. Those tales which had definite outcomes were treated as if they were games or game-like phenomena.

Three judges were used. A tale was rated as having an outcome if it was an account of a contest between two or more sides. This would be the case (*a*) when the fortunes of the hero are followed through, either to triumph or defeat; and (*b*) where one individual or a group of individuals induce or restore a state of misfortune besetting a whole group. Some stories recount happenings which may, for example, purport to explain the present state of affairs, and in these cases it is often not possible to say whether it is an outcome or not. The judges were instructed to reject such doubtful tales. Still only one judge excluded a significant proportion of the tales. One judge scored 100 per cent of the tales as having outcomes, a second scored 92 per cent, and the third scored only 56 per cent. This marked difference in the number of tales scored between the third judge and the other two probably accounts in part for the somewhat unreliable results produced. Only the tales agreed upon by two judges were used for this analysis.

While the present paper is concerned solely with strategy, it was a part of a more general inquiry into all games and their analogous outcomes in tales. The other two outcomes (physical skill and chance) are, therefore, referred to here for purposes of contrast, although they are not central to this paper. It should be mentioned, however, that the findings for the physical-skill and chance outcomes were largely nonsignificant. Important theoretical issues were raised by this fact, but these are sufficiently complex to merit separate treatment in a later paper. The first judge used a set of definitions of the three categories, *physical skill*, *strategy*, and *chance*, first with a set of tales not included in the sample and secondly with the tales in the sample. The following definitions established by the first judge were used by the two other judges:

Physical Skill: any form of motor activity which is instrumental in furthering the outcome, including killing by physical means, *being eaten* or *eating*, running in flight or pursuit, skill in *dancing* or *singing*, etc. Physical skill takes primary place where it is the means by which the

outcome is achieved. Even when physical skill immediately precedes the outcomes, if its importance is merely incidental, it still takes a secondary or tertiary place.

Strategy can be said to occur whenever someone makes a decision to act in a certain way; whenever someone engages in devices to deceive another; whenever he evaluates a situation, weighs up one set of considerations against another; whenever he outwits an opponent as in a fight where, for example, he tries to gain advantage by an intelligent use of the physical terrain. Discount instances where the terrain rearranges itself for the convenience of the subject in question. Only instances of someone using his wits to further his ends in the real world are considered. Magical strategies are not included, but real strategies which lead the hero to a magical being or fetish are included. In terms of the analogy between games and folk tales, strategy in a folk tale has an analogy to moves in a chess game.

Chance: The actual definitions given two of the judges differed from those worked out and used by the first judge in that an attempt was made by the latter to distinguish magic from guessing, casting lots, and pure chance happenings. In the present study, however, all the ratings that refer to any of the magic or chance categories used by the two judges have been taken together and they have thus become equivalent to the category employed by the first judge, who considered as chance any instance of magic, whether it was magical ritual, the gratuitous intervention of a magical or supernatural being, or the intervention of animals as people into the world of people. Also included in this category were instances of guessing, casting lots, and pure chance events.

Each tale was judged in terms of the relative extent to which the three outcome categories of physical skill, strategy and chance were involved in it. A weight of three was assigned to the competitive mode which was primary, a weight of two to the secondary mode, and a weight of one to the tertiary mode. When two of the categories seemed to be equal in importance, the same weight was assigned to each. The weights for each category were added together and a score for the total sample of tales for each tribe for each judge was thus obtained. An overall score for each tribe for the three judges taken together was obtained simply by adding these totals together. The rank-order correlation coefficients for the outcome ratings for the three judges are presented in Table A. These show that such judgments can be made with significant if modest reliability, which is probably due to the great variability in the tales themselves. Other investigators using similar methods of analysis with folk tales have encountered very similar results (7).

In addition to scoring folk tales as if they were games, it was decided to score them for the presence of themes expressive of the child-training variables

TABLE A
RELIABILITY OF THREE JUDGES ON OUTCOME RATINGS

Outcome	Judges	Rho	P
Physical skill	A & B	.64	.01
	A & C	.52	.01
	B & C	.30	.05
Strategy	A & B	.42	.05
	A & C	.56	.01
	B & C	.52	.01
Chance or Magic	A & B	.68	.01
	A & C	.56	.01
	B & C	.32	.05

used in the earlier game studies. It was thought that such themes (which are not obvious in games) might be more explicit in tales and, if they were, would add confirmation to the present inquiry. The child-training themes studied included responsibility, obedience, achievement, nurturance, and independence. These themes are described in more detail elsewhere (1). Although two judges made a thematic classification of the tales in these terms, these judges were not found to be consistent to an acceptable degree. The authors incline to the view that this was largely due to the inadequacy of the training of one of the judges. The other judge did yield two findings of relevance to this article which because of their exploratory value are listed here: Tribes with many games of physical skill tend to have folk tales emphasizing independence ($p < .01$). Tribes with games of chance tend to have tales of nurturance ($p < .05$).

In sum: (a) tales with outcomes were selected for study; (b) these outcomes were classified as due to physical skill, strategy or chance; (c) the presence of folk tales with strategic outcomes was related to the presence of games of strategy; (d) folk tales with strategic outcomes were related to an index of political complexity; (e) folk tales with strategic outcomes were related to the child-training ratings on obedience, responsibility, nurturance, self-reliance, achievement and independence which had been used in the earlier study of games; and (f) the tales themselves were subjected to a thematic content analysis for episodes indicative of some of the same child-training themes as were scored in the Barry, Bacon and Child, child-training ratings. In this latter study (f) tales were analyzed for their child-training analogues, whereas in the preceding step (e) the tale outcomes were related to separately rated child-training practices.

D. RESULTS

Table 4 demonstrates that societies possessing games of strategy tend to have folk tales in which the outcome is determined or partly determined by strategy.

TABLE 4
GAMES OF STRATEGY AND STRATEGIC OUTCOMES IN FOLK TALES

	Games of strategy present	Strategy outcome score rank	Games of strategy absent	Strategy outcome score rank
Ashanti	*	12	Aranda	1
Mbundu		14	Crow	2
Zuni		16	Woleaians	3
Thonga		19.5	Baiga	4
Hopi		22	Pukapuka	5
Chagga		23	Nauru	7
Azande		25	Lepcha	7
Masai		27	Marquesan	7
$N_1 = 8$		$R_1 = 158.5$	Muria	9
			Chukchee	10
			Kwakuitl	12
			Koryak	12
			Mandan	15
			Kurtachi	17
			Comanche	18
			Navaho	19.5
			Ojibwa	21
			Ainu	24
			Kaska *	26
			$N_2 = 19$	$R_2 = 219.5$

$$U = 29.5.$$

$P < .01$ (one-tailed).

It is not enough, however, to establish a relationship between folk tales and games. It is necessary to show that the strategic mode in folk tales occurs in the same general cultural setting as the strategic mode in games. Table 5 shows that the strategic mode of competition tends to be modeled in the folk tales of tribes which are politically complex. The strategic mode may appear in the tales of simpler societies, but it is less likely to be prominent in the tales of such groups. Other relationships are directional. If the sample had included a larger number of truly complex societies (e.g., American), the relationship would have been stronger.

Games of strategy are associated with high obedience training in children (12). If the strategic mode modeled in folk tales is psychologically similar to the strategic mode modeled in games, the same relationship should hold. Table 6 shows that there is a relationship between strategic outcomes in tales and reward for obedience. There were also directional relationships between

TABLE 5
LEVELS OF POLITICAL INTEGRATION AND STRATEGIC OUTCOMES IN FOLK TALES

Political integration	Strategic outcome low (24 or less)			Strategic outcome high (25 or more)
Absent	Arapesh (16)	1	1	Kaska (40)
Autonomous local communities	Tenetahara (21) Zuni (21) Koryak (20) W. Apache (18) Paiute (18) Pukapuka (16) Nauru (15) Jicarilla (14) Chukchee (14) Aranda (10) Baiga (10) Chenchu (9) Crow (9)			Kurtachi (48) Chiracahua (38) Navaho (29) Hopi (27) Ojibwa (26)
		13	5	
Peace groups	Klamath (24) Teton Dakota (16)			Masai (47) Comanche (34)
		2	1	
Dependent societies	Lepcha (17)	1	1	Ainu (44)
Minimal states	Marquesan (19) Cheyenne (12) Crow (9)	3	3	Mandan (43) Arapaho (42) Chagga (36) Winnebago (31)
Little states		0	3	Azande (41) Mbundu (37) Thonga (25)
States		0	3	Yoruba (39) Zulu (37) Ashanti (36)

strategic outcomes and anxiety about "nonperformance of obedience" ($\rho = .24$, $p < .05$). These are the same two child-training relationships previously associated with games of strategy. It is this high emphasis on *both* reward and anxiety (punishment) that forms the cross-cultural empirical basis for the theoretical stress on conflict in the present series of studies.

In the case of folk tales there is the possibility of an internal check. If the strategic mode of competition bears a relationship to obedience training, there should be an emphasis on obedience themes in the tales themselves. This relationship did appear at least directionally (see Table 7).

It should be noted that the independent relationship between cultural complexity and obedience training is either directional or confirmed in this study, and has been observed also in other independent investigations. Barry, Child and Bacon (3) state:

Pressure toward obedience and responsibility should tend to make children into the obedient and responsible adults who can best ensure the continuing welfare of a society with a high accumulation economy, whose food supply must be protected and developed gradually through the year.

TABLE 6
STRATEGIC OUTCOMES IN TALES AND REWARDS FOR OBEDIENCE

Tribes in order of strategy outcomes		Reward for obedience score (Girls)	Reward for obedience score (Boys)
Masai	82	12	12
Kaska	72	8	8
Azande	70	13	13
Ainu	69	14	13
Chagga	67	14	13
Hopi	56	13	13
Ojibwa	53	11	10
Thonga	51	10	10
Navaho	51	10	10
Comanche	50	—	5
Kurtachi	48	6	6
Zuni	47	11	9
Mandan	43	—	10
Mbundu	37	11	11
Ashanti	36	13	12
Kwakiutl	36	10	10
Chukchee	35	12	12
Muria	34	11	10
Marquesan	33	4	4
Lepcha	33	9	9
Nauru	33	12	12
Pukapuka	32	9	9
Woleain	28	11	9
Crow	25	10	10
Aranda	12	9	8
\circ		$N = 23$ $\rho = .49$ $p < .05$	$N = 25$ $\rho = .41$ $p < .05$

The same paper by Barry, *et al.*, shows a relationship between obedience training and animal husbandry and agriculture. The greater the reliance on domestication, the higher the obedience. Obedience training also figures in a combined score which is positively associated with such variables indicative of complexity as size of settlement, degree of political integration, and complexity of social stratification (3).

In sum, the constellation of variables required by the conflict-enculturation hypothesis is virtually complete, though all the relationships found are not equally convincing.

The principal findings of this inquiry were: (*a*) the strategic mode of competition is modeled in both games and folk tales in a number of cultures; (*b*) where the strategic mode of competition is modeled in one medium (i.e., games) it is likely to be modeled in the other (i.e., folk tales); and (*c*) the strategic mode of competition as modeled in games and in folk

TABLE 7
OBEDIENCE THEMES IN FOLK TALES AND GAMES OF STRATEGY

Games of strategy Present	Obedience theme score rank		Games of strategy Absent	Obedience theme score rank
Mbundu	7.5		Ainu	2.5
Azande	12		Navaho	2.5
Chagga	17		Lapcha	2.5
Hopi	17		Kurtachi	2.5
Masai	21		Kaska	5
Thongha	21		Chukchee	7.5
Zuni	23		Woleaians	7.5
Ashanti	27		Muria	12
<hr/> $N_1 = 8$		$R_1 = 145.5$	Ojibwa	12
			Pukapuka	12
			Comanche	12
			Marquesan	12
			Baiga	17
			Koryak	17
			Mandan	17
			Kwakiutl	21
			Nauru	24
			Aranda	25
			Crow	26
<hr/> $N_2 = 19$		<hr/> $R_2 = 237.5$		

$U = 32.5$.

tales is associated with both obedience training and cultural complexity. It was also noted that games of strategy were associated with obedience themes in tales and that obedience training is associated with cultural complexity.

E. DISCUSSION

The constellation of relationships which are either significant or directional and which have been explored in the previous articles and in the present paper can be described simply. Within the full scale realm of actual competition, cultural complexity and obedience training are associated. Within the model realm, games of strategy and strategy in tales are associated and games of strategy are also associated with obedience themes in tales. Between the model realm and the full-scale realm, games of strategy and strategy in tales are associated with cultural complexity and obedience training. In sum these relationships constitute a consistent and meaningful configuration in terms of the conflict-enculturation hypothesis.

It has been argued that obedience training is necessary if adults are to function in a complex social system. This training produces conflict, which

leads to heightened curiosity and drive, which in turn favor involvement in strategic models. Involvement in the models, in turn, assuages the conflict-induced drive and provides supplementary training which further enables game participants to meet the demands of a complex social system.

It is difficult to say much about the enculturation side of the hypothesis until more is learned about the psychology of strategic competence in individuals. While there is little direct research on the development of strategic abilities in children, some evidence suggests that such abilities appear relatively late. Although children play games of strategy such as checkers and tic-tac-toe in a routine fashion in early childhood, ongoing research suggests that they do not show the ability to execute deceptive strategies until about the age of 10 or 11 years or later. Piaget has contended that children achieve the theoretical capacity that strategic thinking implies at these ages and that children demonstrate this ability in the way they recodify their own games systematically and variously in pursuit of more exciting play (9). Perhaps it can be said that individuals must reach certain advanced levels of social and intellectual maturation before they can appreciate the strategic mode in models.

It is probable, too, that cultures must reach an advanced level of organization before strategy in models becomes salient. If historical depth can be inferred from cross-cultural distributions and associations, then games of strategy are most likely a relatively late invention appearing no earlier than Steward's period, "Formative Era of Basic Technologies and Folk Culture," or Coon's Level III, and no later than Steward's "Era of Regional Development and Florescence" (13) or Coon's Level IV (5). The specific association between games of strategy and the presence of metal working is informative. This is not to say that there is a direct relationship in a causal sense, but rather that a culture which has metal working is almost certain to be sufficiently complex to warrant a game of strategy. The highest development of games of strategy appears at much later periods. Folk tales, however, are less specialized and the strategic elements in them may have appeared at an earlier cultural period. Tales may have had their strategic elements derived from the expression of the minor mode of strategic competition, as in games of physical skill and strategy which are linked with achievement rather than with the major mode—the games of strategy—obedience training—cultural-complexity association. Well-developed tales of strategy with clear outcomes are probably no earlier in appearance than games of strategy.

These various speculations are based on the underlying assumption that child-training practices themselves and their associated models are cultural

adaptations and inventions with their own culture histories. If we can conclude with a final speculation, the probable order of the appearance of the cultural inventories of child-training procedures and models is as follows: (a) nurturance and self reliance with no games; (b) independence, responsibility, and achievement with games of physical skill and games of chance; and (c) obedience with games of strategy. The full culture history of models such as games and their associated conflicts, however, must be studied much more systematically than it has been to this time if the above order is to be regarded as being anything more than speculative. Perhaps the time will come when types of tales can be arranged in analogous fashion.

Finally, it would appear that the strategic mode of competition is modeled more sharply in games than in tales and that, in general, game associations are stronger than tale associations. The relative weakness of these associations in tales may be a result of work with a limited sample, unsatisfactory content analysis, and poorly translated tales, but it must be noted that tales, unlike games, are not confined to the modeling of competition and that in general they constitute a more flexible medium than games. In an earlier article, games were labeled *behavioral models* and tales were called *vicarious models* (12). In this frame of reference, tales appear to be more general and less specialized, while games of strategy appear to model the strategic mode of competition in particularly powerful and direct ways. Thus, the strategic mode is not modeled with equal strength in games and tales; games are the favored medium. The present discovery of linkages between both tales and games, and other cultural variables, however, is a first step in the more general study of the nature of model involvement in human culture.

F. SUMMARY

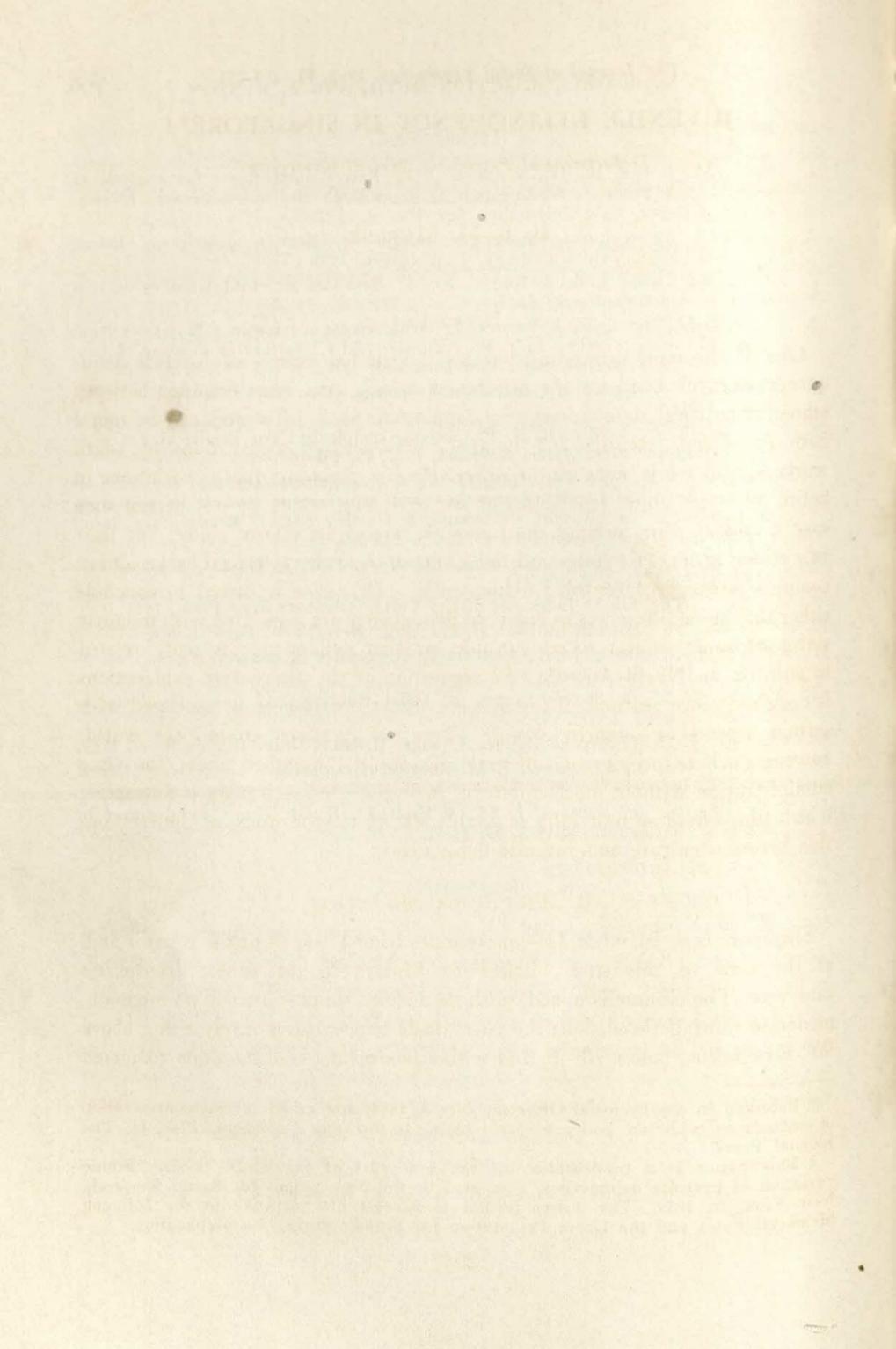
Earlier cross-cultural work with games of strategy has demonstrated linkages with obedience training and cultural complexity. These linkages were supported by further cross-cultural analysis in the present investigation. In addition, it was hypothesized that folk tales with strategic outcomes would be found in the same cultural setting as games of strategy. This hypothesis was confirmed. The results were explained in terms of a conflict-enculturation hypothesis, which seeks to locate the origins of model involvement in psychological conflicts induced by child training, but explains the culturally adaptive value of these models (in this case games and tales), in terms of the learning which arises out of this same model involvement.

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JUVENILE DELINQUENCY IN SINGAPORE*¹

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A. INTRODUCTION

One of the most interesting but most neglected aspects of juvenile delinquency research concerns the differences which have been reported between ethnic or cultural subdivisions of a population. Such differences can be found both in official statistics and in the more sensitive observations of youth workers, and while some of the differences are probably due to variations in police coverage, court procedures or social setting, others do not permit such easy dismissal. For instance, in Lander's careful Baltimore study, "at least two ethnic groups, the Jews and the Chinese, were characterized by an almost complete absence of recorded delinquency" (18). One is forced to conclude either that such differences in recorded delinquency are associated with minority status or some similar social variable, or that delinquency is truly related to culture. In North America, the separation of the alternative explanations is not easy, since cultural distinctiveness almost everywhere is associated with certain aspects of minority status. There are locations around the world, however, where peoples of different cultures live together under the same administration without much difference in status. One such place is Singapore, which thus offers an unusually favorable setting for the study of the relationship between culture and juvenile delinquency.

B. THE SINGAPORE SCENE

Singapore is an island of 225 square miles lying 1° north of the equator and, at the time of this study, linked to Malaya by an almost frontierless causeway. The climate is mixed, with no definite seasons, usually no monsoon, moderate rainfall throughout the year, shade temperatures rarely rising above 90° F or falling below 70° F, and with a moderately high humidity tempered

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by constant breezes. Hence to be houseless there is not as great a hardship as it is in most other countries. Three-quarters of the population is urban, with densities up to 1,000 per acre² in some blocks despite the virtual absence of dwelling houses more than six floors high. On the other hand there is ample open space within walking or cycling reach and an extensive rural belt where average density is only 10 per acre.

At the time of this study (1950-57) Singapore had approximately 880,000 Chinese, 130,000 Malaysians, 82,000 Indians, 17,000 Europeans, 11,000 Eurasians, and 11,000 others. With a high birthrate (48, crude) and low mortality rate, 10, it was reported to have the highest rate of natural increase in the world at this time, and consequently the proportion of children to adults was also very high. In 1953, 41 per cent of the total population were estimated to be under the age of 15, and 22 per cent were of school age (3).

The juvenile population with which this study will be mainly concerned was predominantly local-born of immigrant parents, a characteristic usually associated with raised delinquency rates. These children grew up during the war years and the Japanese occupation, and many of them suffered from the absence of normal schooling during that period. They were thus deprived of normal contact with their own age group at that time, and subsequently entered school to find the age range within single classes very great.

Before the war most social services—including schools, care of the indigent and aged, and housing—were carried out by private, communal or family groups. The return of the British under a socialist government, however, brought about a shift to government responsibility for these services. In 1947, a ten-year plan for education was adopted which decided that there should be free—but not initially compulsory—primary education for all, both sexes being treated equally, and that government responsibility should also extend to “such secondary, vocational and higher education as would best meet the needs of the country.” The plan took a little time to get underway, but it was quickly embraced by the public. As a result, the social and economic ambitions conceived for the rising generation were very different from those which their parents had had for themselves.

In spite of such recent historic experiences felt in common by all sections of the population, however, Singapore was still largely a plural society with cultures only slightly affecting each other. While possessing some experiences in common, Singapore adolescents fall into three or four groups with different languages, different backgrounds, and different, culturally determined, goals. The communities on which they principally depend for socialization

are markedly different in culture and significantly different in institutions. Consideration must therefore be given to these cultural groups.

1. *The Chinese*

The Chinese comprise roughly four-fifths of the total population and hence make Singapore to a considerable extent a Chinese city. But this does not mean that their traditions dominate the borderland where the cultures meet, or that they feel themselves a unified majority group. Until recently senior government posts were predominantly in British hands, the police were predominantly Malay, and a quite disproportionate number of other key posts were in the hands of Ceylonese Indians. Hence certain British and Malay traditions overbore their Chinese equivalents, especially in the administration of justice, where no shadow Chinese institution appears to have existed for many decades. Moreover, although nearly all Singapore Chinese originate from a quite limited area on the south China coast, they are split by linguistic differences into six major groups possessing somewhat different traditions. Hence while it is legitimate to treat them as belonging to one culture, they were not at this time a unified, confident, dominant majority.

The Chinese who migrated to Singapore were mainly lower-class peasants who had acquired some urban traits from interim sojourn in the coastal cities. Hence they had neither the classical education nor the religious and philosophical sophistication that tend to epitomize for the Westerner the idea of Chinese culture. However, the imprint of that culture was still strongly on them. Life centered on the family to a greater extent than in any other highly developed people, and, correspondingly, nonfamilial institutions held a very secondary place (16). In consequence, where the adolescent belonged to an established family and where he could accept his prescribed role within that family, the enlargement of his social world in the teen years was limited, planned, and brought relatively few extra burdens. But if adequate family contacts were missing, then he could expect relatively little help from wider social institutions, and as an individual without family backing would find society comparatively unsympathetic to him. Chinese immigrant societies in Singapore and elsewhere have been quite skilful at devising new institutions, usually on the family model, to meet new situations, but it is clear that their society was to some degree vulnerable to disturbance if goals to be attained called for a different type of institution.

Beyond the family the school was the most important socializing institution. Immigrants from China to Malaya and Singapore, often marrying Malay wives, had early realized its value in maintaining traditional Chinese culture

in the face of environmental influences, and the strong emphasis on learning as a road to advancement in classical China yielded a clear model of what a school should do. Hence, the Singapore and Malayan Chinese established their own schools very early, and until very recently had educated their own children along traditional lines, while the Christian mission and government schools touched only the fringe. These schools, with their emphasis on rote learning of classic and patriotic (Kuomintang) maxims, were very efficient socializing agents as long as the norms to be taught were clear. With the upheaval caused by the Japanese occupation and with the change of norms since, however, they became less satisfactory, and there was among the Singapore Chinese in the 1950s considerable tension concerning education. Parents still thoroughly supported their children in their schoolwork and identified strongly with the child's effort, but they were often in conflict regarding the type of education that should be sought.

The values which the schools and families taught were the familiar ones of respect for elders, family cohesion, propriety, and need for perpetuating the family and race. Ethics were geared to these goals, and such acts as stealing might not be blameworthy if they were on behalf of the family and could be effected without real risk. Cowardice was not a sin whereas fool-hardiness was, since it involved risking a life that was committed to the family. Parents also had their duties, and children were taught that the former would be almost as much failing in their duty if they were too lax or too lenient towards their children, as if they failed in duty towards the ancestral tombs.² Diligence, frugality and caution were the means whereby the family's perpetuation and security could best be achieved, and hence they were the traits which most impressed the early European travellers with respect to this population. More-

² Because of its special interest (I have traced no published report of the legend) and special relevance to our subject, I quote the following in full from a Chinese boy's autobiographic essay, one of over a hundred collected.

"I used to sit under the cherry trees with my mother who told me many folklores of our country and other stories which have moral teachings in them. Among the many stories which she told me was one which is indelible. The story, which has been passed on from generation to generation and is widely told by mothers to their children, deals with a child who happened to steal a needle from his mother. But the latter, in spite of chastising him for his wrongdoing, also encouraged and praised him. Being encouraged, he got into the habit of stealing things. But when the child had fully grown up he was accused of stealing a cow from his neighbor and was sentenced to death by a judge. It was obvious that the mother was responsible for his death. On the day of his execution the mother felt deeply sorry for his death. She realized that it was she herself who had killed her son with her own hands. The son also consciously attributed his death to his mother. When the mother approached him with a flood of tears for her confession, he kicked her stomach unexpectedly in a fit of revenge. It was such a stroke that it caused her immediate death."

over, since richer branches of a family were expected to help poorer, and since it was thought no sin to be poor if only one were dutiful, these norms penetrated and persisted in the lowest socioeconomic strata.

2. *The Malays*

The Singapore Malay community is quite a small one, composed of people from many parts of the region—Malaya, Java, Celebes, etc. They have virtually nothing in the way of literature or art to call their own, virtually no aristocracy, and few formal institutions. Yet the anthropologist Djamour (6) reports that they have a definite culture of their own, different not only from that of the Chinese but from most Malaysian cultures around them. Malaysian cultures in Java, in the Celebes, and in parts of Sumatra and Malaya show considerable violence, but in Singapore the history has in general been peaceful and tensionless. This peaceful type of culture tends to develop in the very lightly populated parts of the Malaysian archipelago, presumably reflecting the ease with which one can make a living or maintain social distance.

If the Chinese culture could be said to have as its main goal the security and perpetuation of the family, the Singapore Malay culture appears to have as its main view the development of contemporary enjoyment, and especially of a rich parent-child relationship. Both cultures value children and in both there will be serious efforts to adopt a child if one cannot be conceived. But with the Chinese this is because the line must be kept going to ensure that there will be someone to worship the ancestors, whereas, with the Malays, children are enjoyed for themselves. When they are grown up, Malays are not particularly expected to care for their aged parents and certainly not for their ancestors' tombs. Moreover, whereas with the Chinese work must be diligent and money must be saved to ensure the family's security, the Malays save for a feast and work for the daily bread, but no further. This contrast penetrates all aspects of life, but especially child rearing. The Chinese will chastise a child deliberately to educate him, and no one will interfere (most of the schoolboy autobiographies collected mention caning). The Malays will not beat a child except on impulse, but may be casually cruel and are likely to quarrel about whether the child should have been beaten or not. Among the Malays, relatives are not important (except one's own mother) and extended families under one roof are rare. Instead, their place is taken by the village, or in the city by certain village-like enclaves where the Malays much prefer to live. There are few cultures in which the parent-child relationship is more rich or more permissive, and it is difficult to imagine any in which

childhood in general should be as happy, for a child is welcomed at every door. On the other hand the relative lack of planning means that child-care is less systematic, and the family or village is not well organized to apportion care for an orphan or for the child of an abnormal parent.

The Malay child is expected to be strongly attached to its mother, and is likely actually to be so, not out of fear of loss, but out of the richness which she gives him emotionally. The father may be just as affectionate as the mother, but he is also likely to see the need for teaching his children, and for having certain principles to teach them, principles largely derived from the Muslim religion. One finds among the Malays a strong loyalty towards any father figure—ruler, military leader, employer, teacher, or the father himself—and quite a strong absorption of his teachings. Among Malay students a conflict between impulse and paternal teachings was found to be a common problem at university and one which the students hoped their teacher or physician would resolve for them (20).

The village or neighborhood is the other principal source of socializing influences. The child is permitted to run to any door, and the Malays do not hesitate to give some guidance on propriety, etc., though no chastisement, to each others' children. Older women and midwives advise the mother on the child's upbringing. The school is less important as an overall influence, since parents do not give it the same backing as do the Chinese.

The weaknesses of this culture, from the special angle of the present study, are its failure to teach foresight and planning (with the result that absolute scarcity of food and clothing may tempt to theft); its low valuation of material goods, which may lead to a low respect for property rights; and the high divorce rate. In 1954, for example, recorded divorces totalled 50 per cent of the recorded marriages for the same year. This must disturb all adult-child relationships, even though at such times the child's interests traditionally receive more attention than the wife's.

3. *The Indians*

There have been no anthropological studies of the Singapore Indians, as there have been for the Chinese and the Malays, and the material collected by the present writer tends to refer to the small middle class rather than to the lower-class majority. Since this majority have come from the lower-caste groups in South India, but without either their own village leaders or normal village structure; and since the Indian middle class in Singapore have a different background, it is unsatisfactory to extrapolate from studies carried out in India itself and difficult to be sure what cultural norms persist.

In the middle class, regular family conclaves were held, and although many squabbles took place the concrete usefulness of family cooperation was fully recognized and the weight of family gossip and criticisms fully felt. Values were somewhat different from those persisting within the equivalent strata in India, but Indian middle-class students in Singapore had a strong consciousness of what the family norms were, and what their Indian society would expect of them, though they lacked an understanding of the underlying reasons. In the laboring class, such family conclaves must have been much rarer and adherence to norms appeared to be much looser. In India, the intermingling of caste, village and family relationships would have formed a strong framework within which socialization must occur for all. In Singapore, a limited reproduction of village caste-council systems might occur in groups united by occupation or by location of employment, but three-generation families were still quite rare in this class, and caste rules had lost their meaning. It is doubtful, therefore, whether there were any wider institutions giving guidance to bringing up the next generation or consideration to the problems of the wife torn from her homeland family. The burden of socializing the next generation must have largely fallen, therefore, on the simple conjugal family, a state of affairs which Indian culture had not catered for.

Indian family life differs from the Singapore Malay in that the wife and children are much more subservient to the father, and differs from the Singapore Chinese in that education or training is not as clearly moulded to age and capacity. The infant is considered to be quite helpless, and has its every demand responded to. At some time between three and six, however, this freedom from responsibility and frustration suddenly changes, apparently because there is no recognized halfway stage between being a helpless infant and being a full-blown individual responsible for one's own acts and exposed to the competition of all other individuals. Lois Murphy was once told in India that "You bring up your children; we live with ours" (23), and this appears to embody an important truth. From anthropological writings on Indian lower castes it appears that the adult is not expected to modify his actions, feelings or the harshness of external reality to the child's capacities. Also the mother is permitted to be much freer and less consistent with her feelings—anger as well as love—than if she saw herself obliged to mould them into a tool for education, as a Chinese mother would. It is notable that in the small sample of Singapore Indian schoolboy autobiographies collected, half the writers view their later childhood as unhappy. One gets the impression that this is due to the child being thrown too much on his family, in the

absence of some compensating features which the homeland village would have held. However, it is also true that a study of children's fears in India has shown them to be more numerous and intensive than those reported in similar North American studies (10).

In Singapore, as in India, the position of the boy and of the girl differs markedly, in all classes, due to the female subservience which the culture preaches. The mother and the sister become subservient not only to the father but often to the boy, whose male relatives may teach him to despise his mother (9). At the same time the mother, in order to have some control over the boy, may make a bogeyman of the frequently absent father, partly disciplining in his name, partly appealing to the boy's companionship vis-à-vis the father (17). The daughter, who shares the mother's subordinate position, easily identifies with her, but identification for the boy with any adult around him seems difficult. In villages this may have been compensated for by the village leaders acting as models, and in the Singapore middle class there would probably be some relative to admire, but in the Singapore laboring class compensatory models seem likely to have been less accessible. Although there is too little evidence on the Singapore Indian family and culture, it does seem probable, therefore, that the lower-class family was not at this time receiving much help from its cultural heritage in the task of training its boys for social living. Studies have shown that the Chinese immigrant communities have developed specific institutions to meet the problems of the immigrant situation, and Indian migrant groups in the Caribbean and South Africa appear to have been equally resourceful. The Singapore community was young, however, and did not appear to have, as yet, succeeded in its social adaptation.

In summary, the above paragraphs should have given some indication of the diversity of background that the three main groups of Singapore adolescents experienced, but it is still necessary to say more about what was common to them all.

One thing of importance was their evaluation of childhood as a role vis-à-vis other roles. It is important because the adolescent's image of himself tends to depend on how his culture views the roles he is leaving behind him and the roles he is assuming. In most Asian cultures, and certainly in the three with which the present study is concerned, the highest value tends to be given to old age, or, nostalgically, to childhood itself. Maturity means not a time of wealth and sexual enjoyment so much as a time of assuming heavy responsibilities. In comparison with the United States, childhood in Singapore is more highly valued and hence less pressingly put behind one.

Since acceptance of childhood status implies acceptance of dependency and tutelage, we have a difference in the two social climates which is worth noting.

But the contrast with the United States city lies in the total conditions under which the childhood is experienced, physical as well as social. The schoolboy biographies reflect repeatedly the great delight which children and even adolescents found in the life and conditions around them, even in the midst of wartime miseries.³

In general one finds that childhood freedom and experience were permitted and encouraged by the adults as long as school studies would permit. This must be kept in mind in considering comparative rates of delinquency.

C. SOURCE OF DATA

The main delinquency material to be dealt with here consists neither of total juvenile-court referrals, nor of court cases sent to an institution, nor of cases seen at a child-guidance clinic, nor even of a random sampling of any of these. Instead, it comprises those cases with regard to which the juvenile court in Singapore sought special background information prior to handing down a decision. By a special ordinance the juvenile court had the power to call for a full report on the social background of any case brought before it. Over the period with which this study is concerned, roughly 1948-55, welfare department probation workers prepared such reports for about a quarter of all cases which the court saw, including all involving major offenses.

The reports on which the research is based were four-page documents compiled by probation officers and probation and welfare trainees from interviews with the juvenile himself, with his family, teacher, employer or occasional other informant. Certain information on them was abstracted and coded for punch-card analysis, these latter tasks being done by the writer with one assistant. By no means all the information in the reports was abstracted in this manner because the chief probation officer was doubtful about the reliability of his trainees in certain respects, and the service was in any case young. What was abstracted, therefore, was the more concrete and objective type of information, and in this process doubtful cases were referred to the writer for decision, the item being left blank if the information was unclear or apparently contradictory. A number of reports, especially from

³ "During low tide my cousins and I went down to the muddy shores to catch crabs, sometimes prawns. In the evening we children ate our meals on our watchman's bed beneath a cherry tree in front of the hut. We witnessed the rats which ran on the roof as though they were playing hide-and-seek among themselves. The place was like a paradise to me, for there were food and a lot of fun from morn till night."

the early years, were ignored owing to the paucity of information which they contained. In general, however, they were quite adequate, and they had the less common advantage of containing any further police record from the moment the report was made. If the case had been put on probation the follow-up reports were also included.

Behind the reports stands the Singapore juvenile court with its statutory powers and limitations, which need to be briefly described. The court's powers officially applied to children, who are defined as those under the age of 14 in the opinion of the court, and "young persons," meaning those over 13 and under 16 by the same loose criterion. The cases brought before the court included all juveniles arrested, with or without warrant, by the police, offenders from "approved schools," juveniles "in need of care and protection," and "refractory" juveniles; but not cases of truancy, as in the United States, and (theoretically, at least) not cases triable only in the High Court. Those "in need of care and protection" include almost any case where there is lack of "proper care and guardianship." "Refractory" juveniles are those where the parent or guardian claims that he is "unable to control the child or young person." The court itself is constituted by a magistrate and two advisers drawn from a panel of persons with special experience in welfare work and youth work. Procedure is informal, the public is excluded, parents or guardians can be forced to attend, legal representation, though rare, is permitted, and use of the words "conviction" and "sentence" is forbidden, though the "finding of guilt" remains (4).

The official means available to the court in Singapore did not differ much from most courts in the United States. The two were more likely to differ in the unofficial or semiofficial means available. In Singapore there was no psychologist available to the court and the only psychiatrist accessible was rarely consulted. On the other hand, there were numerous unofficial links to clubs, clan associations and similar communal bodies which may be less common in an American city.

There are two main reasons why the probation-officer reports were preferred over other possible sources of material. First, they offer much more information on different social variables than do other sources, and cover many more cases than could have been worked up, *de novo*, for this research. Secondly, the cases dealt with are likely to be especially those where the socializing relationship between the juvenile and his milieu was seen by the court as probably unsatisfactory. Hence, they are more likely to present a relevant and interesting reflection of the true delinquency situation than any other easily available sample.

The most serious disadvantage that such a sample carries is the impossibility of comparing the rates derived from it with those derived from other data. No other court is likely to be using precisely the same criteria for selection of cases for special report. A second disadvantage is that the court's personal biases could have operated to focus especially on one offense, or on one ethnic group, and thus distort the picture obtained. Neither of these disadvantages outweighs the foregoing advantages, however. International comparisons are rarely attempted and are doubtfully regarded, owing to the known vagaries of court referral, the difference in laws, in enforcement and in public attitudes. To have chosen total court referrals from Singapore, therefore, would still not have yielded any worthwhile international comparison. On the second point, the court's concern with specific offenses and the bias that this could introduce in the data is probably no greater than the various public and official biases which operate at any juvenile court. One knows well enough that in one city vandalism will be sharply punished and in another be allowed free scope; that in one court the concept "in need of care and protection" will be widely applied, and in another be scarcely mentioned. What is of potential relevance, however, is any ethnic or cultural bias held by the court. Since the main purpose of this research was to compare patterns of delinquency in the different ethnic groups that people Singapore, it is important to have some assurance that the data reflect such patterns, and not merely the biases of the court or of the police.

The point was investigated rather thoroughly, by watching the court at work, reading case files carefully, considering the personalities and backgrounds of the members of the court, and allowing for the composition and reputation of the police force. Outside of the nearly universal social-class bias of police and courts, which in Singapore favored the Europeans and Eurasians, no significant difference in attitude towards the different ethnic groups could be found. The court members were of all races, but tended to be British educated and hence to share a common British attitude towards social problems. No attitude of contempt for any ethnic group or attribution of general criminality, asocial behavior or irresponsibility as an ethnic stereotype was detected in them. The police tended to be Malay in the uniformed ranks, Chinese in the detectives, and Indians only at the higher levels, but the ordinary Malay constable was well recognized to be a tolerant, obedient man without special prejudices except when his religion is offended. It is possible that the predominance of Malay constables at the ground level would result in fewer Malay court referrals for minor offenses, since the constables would probably be in touch with village and neighborhood leaders and hence be able

to use their support. This would probably only apply to offenses committed within the Malay neighborhoods themselves. There was no word heard at the time of either Malays or Chinese showing a special prejudice against the Indians, or using their official positions to persecute them.

A little more needs to be said about other material used. The main source of population data was the official population census for 1947, which was regarded as highly reliable (5). Birth and death statistics were used to estimate the population of a particular age at a particular year, although, due to the war years, the reliability of this source was less accurate than usual. Other sources were the Social Surveys of Singapore, 1947 and 1953, which used random samples of approximately 1,800 and 6,000 households in the municipality of Singapore, and were aimed at certain economic questions (15, 31).⁴ Finally, a two-year analysis of adult crime as reported in the newspapers was carried out by one of the writer's students.⁵

As stated previously, there is little value in international comparisons of crude court-referral rates, and it is not intended to place any emphasis on them here. However, the reader may find it helpful to receive some slight indication of how the Singapore picture compares with that in the West, and Table 1 has therefore been compiled. One sees that as compared with Canada, where the legal system is usually more like that in Singapore than like that in the United States, the rates are low. Compared to Los Angeles, one of the very few settings in the United States for which a comparable age-specific rate could be calculated, it is not. However, in the latter community the juvenile court apparently comes into the picture only after the authorities have attempted less formal intervention. According to Eaton and Polk, out of 52,398 juveniles coming to the attention of the police during one year, only 8,615 were referred to the probation department as needing investigation for delinquency, and of these only 5,248 were placed under the supervision of the juvenile court (12). The police, supported directly by the probation department, were thus acting on their own initiative in most cases which came to their attention, something which was not officially approved of or, to the writer's knowledge, often attempted in Singapore. It seems reasonable to conclude, therefore, that juvenile delinquency, as known to the police, was less frequent in Singapore than in representative Western communities.

⁴ See Goh, K. S. (15) for published particulars. However, data used here were in part unpublished and made available to the writer through the kindness of the Singapore Department of Social Welfare.

⁵ *Strait Times* (Singapore), news items, 1952-53.

TABLE 1
INCIDENCE OF JUVENILE COURT APPEARANCES IN SINGAPORE, AS COMPARED
WITH REPRESENTATIVE NORTH AMERICAN DATA

	Rates per 10,000 per annum for children (both sexes)				
	Aged 6-15 inclusive		Aged 5-14		
	Singapore 1948-51	Singapore 1954-55	Canada 1951	Manhattan 1930	Los Angeles 1956
Total court referrals	21.5	26.7	43.8	91.1	25.3*
Investigated by probation department		11.2			33.8
Sent to institutions		3.3	6.7		3.3*

* Rates estimated.

Note: Canadian rates calculated from Canadian Government Statistics (7, 8), Manhattan rates from Robison (26), Los Angeles rates from Eaton and Polk (12).

D. ETHNIC DIFFERENCES

The initial comparisons between ethnic groups are given in Table 2 and Figure 1. There, one finds that whereas Chinese and Malay rates are very similar, the Indians have many more cases proportionate to their strength in the population, and the Europeans and Eurasians many less. Regarding the

TABLE 2
DISTRIBUTION OF JUVENILE COURT SPECIAL SAMPLE BY ETHNIC GROUP, WITH ESTIMATED
POPULATION AGED 10-15 AND RATES PER 1,000 PER 8 YEAR PERIOD, BY SEX

	Chinese	Malays	Indians	Europeans & Eurasians
Males				
Total juveniles in sample	782	101	155	3
Cases aged 10-15 in sample	690	90	135	3
Estimated population aged 10-15	55,870	7,010	3,030	680
Rate per 1,000 aged 10-15 only	12.3	12.8	44.6	4.4
Rate per 1,000 sent to institutions	3.1	3.3	14.5	nil
Females				
Total juveniles in sample	120	7	5	1
Cases aged 10-15 in sample	104	7	4	nil
Estimated population aged 10-15	51,130	7,680	2,750	760
Rate per 1,000 aged 10-15 only	2.0	0.9	1.4	nil
Rate per 1,000 sent to institutions	0.3	nil	nil	nil

Indians, the difference applies not only to overall rate, but also to the character of the age curve.

Whereas the male Chinese and Malay curves rise fairly steadily from the age of 8 to that of 15, the Indian curve rises acutely at age 10 and then levels off. However, the difference appears only in the male rates. Among girls, who rarely appear at the Singapore juvenile court, the Indian rate does not differ significantly from those of the other Asians.

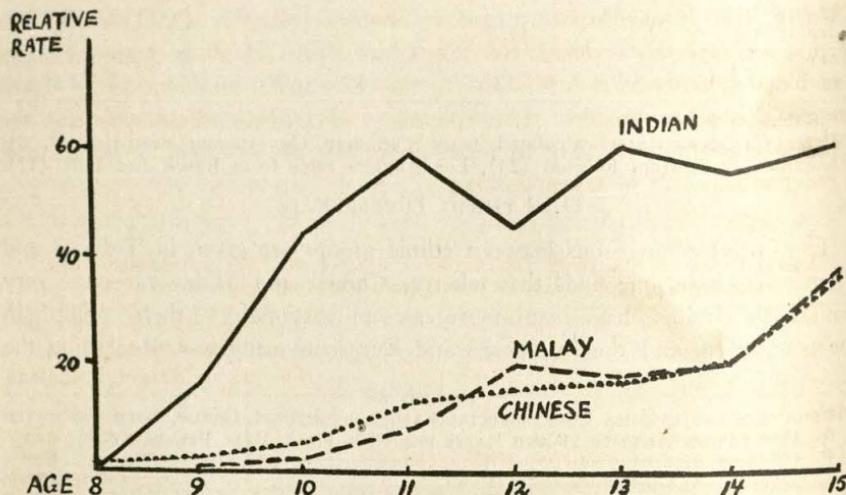


FIGURE 1

RELATIVE RATES OF JUVENILE DELINQUENCY BY AGE AND ETHNIC GROUP, MALES ONLY
Juvenile delinquency cases from special sample only. Populations at each age within specific ethnic groups estimated from recorded births minus recorded infant deaths in each year 1938-45, inclusive, as adjusted for later deaths and migrations in light of 1947 census distribution.

The picture obtained raises several questions. If one starts from the assumption that delinquency is essentially an individual matter, then a similarity of rates is to be expected and the marked difference in the Indian male rate is a problem. If one starts from a genetic hypothesis, then the difference between the Indian male and female rates is the problem. If one assumes that culture and society are significant moulders of delinquency, then neither of the aforementioned differences needs to be treated as surprising, but the similarity between the Chinese and Malay rates is puzzling. Such different cultures, on this last assumption, should surely produce different patterns of delinquency. Also, one would like to know how it is that the

different cultures or social situations produce such different rates as the male Indian and the male Chinese ones shown.

The puzzling, apparent similarity between the Chinese and Malay patterns of juvenile delinquency is easily disposed of. Table 3 shows that although their overall rates are similar, the character of their offenses is not. Despite the levelling process which selection for special report implies (minor misdemeanors being thereby excluded), the Malay rate for housebreaking (category B, Table 3—offense against property, with violence) is almost double the Chinese. But if one looks at trading offenses (category D, Table 3) the picture is completely reversed. Here the Chinese rate is high, both among males and females, whereas it is low among the other males and completely absent among the other females. The frequency of trading offenses among the Chinese appears fairly easy to relate to certain aspects of Chinese culture, a point which will be taken up later.

TABLE 3
DISTRIBUTION OF SINGAPORE DELINQUENCY SAMPLE BY TYPE OF OFFENSE, SEX,
AND ETHNIC GROUP, WITH COMPARATIVE RATES PER 1,000 AGED 10-15

	Chinese	Malays	Indians
	Comparative rates per 1,000 aged 10-15**		
Males			
A. Offenses against the person	1.13	1.10	0.66
B. Offenses against property, with violence	0.91	1.70	6.60
C. Offenses against property (other)	7.84	8.75	36.00
A, B and C combined	9.88	11.55	43.26
D. Offenses against discipline (trade)	2.60	0.28	0.66
E. Offenses against discipline (other)	0.48	0.40	3.30
F. Other offenses (incl. "in need of care," begging, malicious mischief, escaping arrest)*	1.04	2.17	3.98
Total	14.00	14.40	51.20
Females			
A. Attempted suicide	0.21	nil	1.09
B. & C. Offenses against property	0.64	0.91	0.36
D. Offenses against discipline (trade)	1.19	nil	nil
E. Offenses against discipline (other)	0.30	nil	nil
Total	2.34	0.91	1.45

* Cases in F. are not all offenders, but the particular classifications used both by the court and in my own coding did not permit a useful further separation.

** All cases in sample included, not merely those aged 10-15.

On the Indian side, the relatively low juvenile rate of offenses against the person is noteworthy, especially as it is not characteristic of Indian crime as a whole. The next table (Table 4) shows that direct personal aggression is

the most frequent form of offense reported among adult Indians, exceeding theft. Undoubtedly, therefore, each ethnic group in Singapore can be said to have a different delinquency pattern.

TABLE 4
PERCENTAGES OF DIFFERENT CLASSES OF OFFENSE IN JUVENILE DELINQUENT
AND ADULT CRIMINAL SAMPLES FROM THE THREE MAIN ETHNIC GROUPS
IN SINGAPORE

		N	Person	Offenses against Property	Discipline*
Indians	Juvenile delinquents	155	1%	83%	16%
	Adult criminals	121	40%	60%	(nil)
Chinese	Juvenile delinquents	782	8%	63%	29%
	Adult criminals	472	23%	77%	(nil)
Malays	Juvenile delinquents	101	7%	74%	19%
	Adult criminals	143	22%	78%	(nil)

Note: Delinquency data from juvenile court records. Adult criminal data from newspaper files. Percentages are to nearest whole number only.

* Reports of minor offenses by adults not collected, since newspapers only reported minority of cases.

It is appropriate now to ask if these different patterns can be accounted for by social factors operating independently from culture and ethnicity, factors such as social class, broken homes, and locality of residence. These can each be briefly considered to see to what extent they play a part in the Singapore picture of juvenile delinquency.

For analysis by social class, it is not sufficient merely to consider the class structure in the total population of each ethnic group as given in the census, since different classes might have different proportions of children to adults. Two alternatives, relating specifically to families with children, offer themselves, thanks to the Social Survey mentioned previously. The simpler and probably more reliable is through mean family income, since that offers an answer to the basic question—are the Indian families with children of a lower average social class than the Malay and the Chinese? The other alternative is to try to estimate the social-class distribution of delinquency in each ethnic group, using data which cannot be very precise.

In Table 5 the first line shows that, in the families from which the delinquents came, the average income of the Indians was clearly below that of the Malays and quite far below that of the Chinese. However, the Social Survey of other families (second line) shows the Indians to have a mean

TABLE 5

MEAN INCOME REPORTED BY FAMILY HOUSEHOLDS IN SINGAPORE, BY ETHNIC GROUP,
FROM DELINQUENT AND POPULATION SAMPLES RESPECTIVELY

	Mean household income		
	Chinese	Malay	Indian
Delinquency sample, households with parents and dependent children, with or without other members	\$210	\$170	\$150
1953 Social Survey sample, families with parents and children only, no other member (15)	\$179	\$156	\$166

Note: Criteria for measuring income were probably not the same in the two samples, but should be uniform within each.

income below the Chinese but above the Malays. Tentatively, this suggests either that the Indians have a wider range of income than the other groups, with proportionately more of them in the lowest income strata, or that the negative association between income and delinquency is more marked in this than in the other groups.

The second approach makes use of the occupation of the head of the household and the figures are taken from the Singapore delinquency records and from the 1947 Social Survey. The Social Survey data are not ideal, and in attempting a comparison with the delinquency material it was necessary to combine rather dissimilar groups—large factory owners with nurses-aides being the most extreme—in order to avoid gross overlap or uselessly small numbers in each cell. But the resulting stratification has still some meaning and the results are interesting. The most noteworthy point is the sharp division of the Indian ratios into two groups roughly corresponding to Western so-called *White-collar* and *Blue-collar*:

	Chinese	Malay	Indian
White-collar (Nos. 1, 2 & 3)	0.20	0.44	0.31
Blue-collar (Nos. 4, 5 & 6)	0.50	0.45	2.02

For the White-collar categories the Indian comparative delinquency figure is actually lower than among the Malayan White-collar groups and only slightly higher than among the Chinese. For the Blue-collar categories, however, the difference in relative frequency is enormous. Apparently it is not the Singapore Indians as a whole but only their lower classes which have a high delinquency rate. This was one of the possibilities suggested by the mean income figures, and since possible sources of error did not appear capable of yielding such a result, this finding can probably be regarded as valid.

Another point of interest is the following. While Chinese delinquency shows

TABLE 6
DISTRIBUTION OF SINGAPORE DELINQUENT SAMPLE AND OF BOYS AGED 7-15 INCLUSIVE IN 1947 SOCIAL SURVEY, BY OCCUPATIONAL
CATEGORY OF HEAD OF HOUSEHOLD AND BY ETHNIC GROUP; WITH STANDARD ERRORS FOR THE SURVEY UNITS AND RATIOS
OF DELINQUENTS TO GENERAL SAMPLES

	1	2	3	4	5	6	7	8	9	10	11	12
	Soc. Survey N	Chinese SE	Juv. del.	(3) (1)	Soc. Survey N	Malay SE	Juv. del.	(7) (5)	Soc. Survey N	Indian SE	Juv. del.	(11) (9)
Professions	181 ± (13)	.13	.07	14 ± (3.6)	6	.43	10 ± (3.0)	6	.6			
Commerce	428 ± (18)	11.2	.26	8 ± (2.8)	3	.37	10 ± (3.0)	3	.3			
Clerical	152 ± (12)	30	.2	14 ± (3.6)	7	.5	16 ± (3.6)	2	.11			
Artisans	160 ± (12)	57	.37	11 ± (3.2)	7	.64	4 ± (1.9)	7	1.75			
Semiskilled	528 ± (13)	278	.53	115 ± (6.7)	48	.42	23 ± (4.1)	42	1.89			
Unskilled	230 ± (14)	122	.53	13 ± (3.5)	8	.62	17 ± (3.7)	40	2.35			
Unclassed or unknown	67	79			14	5			9	12		
Total	1744	691	.40	189	84	.44			89	112	1.26	

Note: To correspond with the 1947 Survey (31), delinquents from rural areas have been excluded.

a steady rise with what one presumes to be declining social class (see column 4 in Table 6), Malay delinquency shows no such trend at all (column 8, Table 6). This is interesting, since a parallel study has shown a similar difference with respect to mental hospitalization. There Chinese hospitalization rates vary in the expected manner with social class; Malay do not (22).

The Europeans and Eurasians in Singapore are almost wholly White-collar and hence any comparison should be with the Asian White-collar section only. Calculations tend to show that the European and Eurasian delinquency rate is virtually the same as that of the White-collar Chinese and Indian, although still significantly below that of White-collar Malays.

One may therefore conclude that while such class structure can probably account for the difference initially found between European and Eurasian rates on the one hand and Chinese and Malay on the other, it cannot account for the still greater difference between the Indian rates and the latter. Class clearly has a special relevance for delinquency among the Indian population, but lower-class Indians, who are the majority of that group, still have remarkably higher rates of delinquency than lower-class Chinese or Malays.

Regarding broken homes, it is so well established that these, however defined, produce more delinquency than unbroken ones that an obvious question is whether the high Indian delinquency rate derives wholly or mainly from a high frequency of such homes.

There are two ways of tackling this question. First, one may simply inquire into the percentage of broken homes in a representative sample of each of the ethnic groups. The social survey mentioned earlier furnishes such a sample (Table 7), and one sees that the percentage of broken Indian families is slightly lower than that of the two other ethnic groups, not higher.

This comparison, however, is rather rough and calculations have therefore been made of the incidence of delinquency in complete simple families with parents, children and no other adults, comparing this with the incidence in other types of household. Table 8 presents the results. While the highest rates of all are clearly to be found in the Indian "other-households" group (which contains some unbroken, extended families, see Table 7), the differences in rates within the simple complete family groups are still very marked. The presence of broken families, therefore, cannot be said to be able to account for the difference between Chinese and Indian delinquency rates.

A further point which Table 8 shows is that the Malay delinquency rate is significantly lower than the Chinese in complete single families, but in other types of household it is definitely higher. Thus, yet another difference between

TABLE 7
PERCENTAGE DISTRIBUTION OF POPULATION IN HOUSEHOLDS CONTAINING CHILDREN,
1953 SINGAPORE SOCIAL SURVEY (15)

	Chinese	Malays	Indians
1. Man, wife and own or adopted children	59%	71%	73%
2. Couple with relatives, with or without children (extended family)	25%	18%	18%
3. Incomplete families	16%	11%	9%
	100%	100%	100%
Total number of families	2499	440	179

Note: Households with no children have been excluded from this calculation, and percentages are to nearest whole number only.

Chinese and Malay delinquency patterns appears, supporting the idea that culture is a relevant variable, but at the same time calling for explanation.

Regarding locality of residence, it has sometimes been demonstrated in the United States that the bulk of delinquency in a city comes from a particular locality within it, and that in other sections of the city the ethnic group showing the highest overall delinquency rate has no higher a rate than any

TABLE 8
RELATIVE RATES OF JUVENILE DELINQUENCY IN SINGAPORE POPULATION AGED 0-17, BY ETHNIC GROUP AND BY TWO TYPES OF HOUSEHOLD

	Complete simple nuclear families			Other households		
	Chinese	Malays	Indians	Chinese	Malays	Indians
Estimated population aged 0-17	(239.6)	(39.5)	(19.9)	(161.2)	(16.1)	(9.4)
Offenses against person & property	50	36	130	80	140	324
Offenses against discipline, etc.	22	8	19	46	31	58
All offenses	72	44	149	126	171	382

Note: Delinquency refers to studied sample only. Population strata were derived by relating 1953 Social Survey data to total census of population. Rates are presented on the basis that average for all offenses is 100.

other. In Harlem, for instance, the Negro population had, in the 1930s, unusually high rates of delinquency, but in the New York borough of Richmond the Negroes (although not so different in social class) showed no higher a rate than the White population (26). It has thus been argued that there is about such high-rate localities a contagiousness of criminality which youth cannot escape, so that any ethnic minority concentrated in these localities will be tarred with a high rate for this reason alone. The argument is not a

universally sound one—for instance, in Baltimore the Chinese happen to live in the center of one such area but retain their low juvenile delinquency rate—but needs to be allowed for (18). In Singapore terms the question becomes: do the Indians tend to live in an area with high criminality, or at least does the bulk of their delinquency come from such an area?

Available data cannot provide a complete answer to this question, but what is obtainable is highly suggestive of a different factor at work.

TABLE 9

DISTRIBUTION OF INDIAN FEMALE POPULATION AND INDIAN DELINQUENCY SAMPLE
BY DISTRICT OF RESIDENCE; WITH COMPARATIVE RATIOS

	Estimated Female Population, 1947	Delinquents in Sample	Ratios per 1000
Central urban area			
Postal District 1	470	2	4.3
Postal Districts 2, 3, 4	2370	26	11.0
Postal Districts 6, 7	780	7	9.0
Postal District 8	2850	24	8.4
Postal District 9	800	7	8.7
Total urban areas	7270	66	9.1
Suburban & rural areas	4630	76	16.4
Total	11,900	142	11.9

Note: In 18 cases private residence was not given or was outside Singapore.

If we compare the distribution of delinquents by residence with that of Indian females at the 1947 census (females giving a better pointer to the location of *families* than males would) we find that within the main part of the city the Indian population is considerably scattered and that there is no central district, such as a deteriorated urban slum area or red-light zone with a concentrated Indian population, which shows disproportionately much delinquency. Also, the gradient from center outwards within the city is quite a mild one, affecting mainly the less serious offenses, and within the center zone there is relatively little variation. In postal districts 2 and 3 there was a small slum area with a disproportionate percentage of Indians, in the 1950s, but the table shows that delinquency from this area is not unduly high.

Thus, there would appear to be no reason for believing that Indian juvenile delinquency is affected by locality of residence in the traditional sense, or that there is a street-corner juvenile Indian delinquency subculture in the sense of Albert Cohen's concept (2).

A curious point, however, is the relatively high rate from the suburban

and rural zones. The limited amount of slum clearance and consequent movement to the suburbs between the 1947 census year and the middle year for the delinquency data (1952) offers a partial explanation, but does not appear to have been great enough to account for the total picture. After allowing for such movement, it is probable that Indian juvenile delinquency was quite as high in the rural and suburban parts as in the city center. This, therefore, is yet another unusual feature of the Indian picture.

E. SOCIETY AND CULTURE

The foregoing findings have indicated that the observed differences in juvenile-delinquency rates in Singapore cannot be accounted for by any simple, one factor theory. If they are to be accounted for at all, it must be by means of some broad concept applying to a number of factors. One such concept is that of Durkheim's anomie (11), whose relevance for delinquency has been supported in a number of previous studies (13, 24, 25). If it could be validated, a definite step forward in delinquency theory would have been achieved, and such validation might seem possible in the Singapore setting. There, the group most likely to be anomie were the lower-class Indians, and they were also the group with the highest delinquency rate. The Indians can be considered to be the most recently arrived in Singapore, the most disturbed in terms of social institutions, and the group which had least created new institutions. Facing a society with a different cultural value system and lacking such familiar institutions as caste structure, family networks and traditional village organization, it might be expected that these Indians would be sceptical of any values or norms whatever, and thus would be close to anomie.

However, neither the delinquency material, nor one's knowledge of Indian social structure in Montreal supports this hypothesis. On the delinquency side, there are important factors which do not harmonize with the idea of a general anomie producing a general failure of socialization. The Indian girls had the lowest delinquency rate of all three ethnic groups, and, although the boys had so high a rate of offenses against property, they had no higher a rate than the other ethnic groups for sex offenses and for assault. On the social side, it has already been noted that the Indians had the smallest percentage of broken families, which does not indicate anomie. As well, financial analyses have shown that they were very active in sending remittances from Singapore to the Indian mainland (14), and it was well known that they exhibited a high level of participation in trade-union activity. On the female side, although one might again think that there were some reasons for

an abandonment of traditional norms, the rarity of prostitution, the rarity of female crime, and the rarity of female juvenile delinquency, all point against the idea of the Indian woman abandoning her traditional values. Life in Singapore was more strange, and probably demanded more adjustments from the Indian woman than from any other category of the population, but one cannot say that a social anomie resulted.

There are other general concepts that one might think of, but none that come any closer to the facts. If an explanation for the delinquency patterns in Singapore is to be found at all, therefore, it is probably to be found in the special characteristics of the different cultures. Does consideration of these characteristics offer any clearer understanding?

Taking the Indians first, there are some basic features of their culture which might explain the observed characteristics of Singapore Indian delinquency. One is the mother-son relationship. Indian culture teaches the almost universal tenet of parental superiority, but at the same time it emphasizes that the male is superior to the female. As sociologists have described, this can cause confusion in male children, who become unsure whether to accept maternal admonitions or to resist them (9). There are undoubtedly regional variations in this, and the dilemma may often be unimportant in normal Indian extended family and village society where many adult males participate in the socializing process. In Singapore, however, the extended family and anything resembling the traditional village is almost nonexistent, with the result that the socialization of male children becomes almost wholly the function of the mother. Accordingly, in Singapore the discipline and socialization of lower-class Indian boys can be expected to bring difficulties both to mother and to son, and hence lead sometimes to socialization failure. Yet, the disciplining and socialization of female children need create no problem or breakdown, for this disciplining has always been accepted as the mother's individual function, and it gets reinforced by the girl's strong identification with her mother in relation to the male sex. Naturally, the mother's task is going to be more difficult if she is living alone than if she has other Indian families around to support her, or if she has an extended family network already established. Hence it is wholly in accordance with this theory that delinquency should be as high in the suburbs and rural area as in the center of the city (where other Indian families are more accessible), and much less in the middle class than in the lower. In the Indian middle class today it is much more accepted that the father should share in his children's upbringing (17), and in Singapore that group had already an extensive network of family connections.

However, it is not enough to demonstrate that Indian culture at certain

points is relatively weak in its means of inculcating norms. For an explanation of juvenile delinquency one must also postulate the presence of temptations or pressures to break such norms.

Such pressures and temptations not only existed for Indian children, but probably were heavier than for the corresponding Chinese and Malays in Singapore. They derive from three basic features of Indian culture. The first is an abrupt transition from infancy to childhood which can be presumed to constitute a temptation towards regression and which does not normally occur in the other two cultures. The second is the absence, in the lower classes, of the concept of tutelage for children. The third is a considerable cultural tolerance with respect to the expression of aggression against inferiors. Infancy in rural lower-class Indian culture is commonly a time of complete indulgence. Infants are not expected to be able to tolerate deprivation or delay; they are picked up whenever they cry, are fed on demand many times a day, and are given little or no graduated training in socialization. In childhood, however, the Indian boy is not regarded as occupying successive intermediate positions between infancy and full adulthood. Rather, he is regarded as a miniature adult, as a whole person, able to carry most of his own problems. This gives him many freedoms which Western children do not have, but at the same time opens him to many types of frustration or difficulty from which Western children are partially protected, among others the danger of severe punishment or retaliation by anybody older or stronger than he is. Should he incite such punishment, he can call on his parents or relatives as allies in his quarrels, but he cannot claim special childhood status wherein punishments, frustrations, etc., can be expected to be moderated. Hence, as Dube describes, it is quite acceptable for adults and older children to tease the youngsters and there is no shame in trying to get them angry, irritated and aggressive (9). Again, if a child is regarded as being born unlucky, according to the stars, the suspicion and fear that is shown to such a person is moderated very little by the fact that he is still a child. Autobiographies collected in Singapore illustrate that a boy in such a position can be treated extremely harshly by his parents and neighbors. Yet, in these cases, if the child expresses open aggression and resentment, he makes himself liable to much more violent retaliation than would be likely in either Western or Chinese cultures.

Such a state of affairs can be expected to show some results in terms of psychological testing and personality profiles and this has been found. Shanmugam, in Madras, in a partial duplication of Symonds' work on child fantasies, has shown that resentment is ten times more often mentioned in the fantasy stories by Indian children than in those of U.S. children (28, 29,

30, 33). Dumas, in studying the fears of children in three Northern Indian states, has shown that these children express spontaneously many more fears than do corresponding children in Western cultures (10). There seems little doubt, therefore, that resentment and anxiety are likely to be stronger in Indian children than in Chinese or Malay. However, since aggressiveness in any direct form is liable to receive sharp retaliation, this resentment cannot easily find expression in direct assault, at least until the child becomes so strong or mature that he need not fear such retaliation. Theft, as the Singapore data illustrate, is the natural outlet for this resentment in the circumstances, and it is interesting to note that in Shanmugam's study of fantasy Indian children mention thieves and theft much more than they do assault, murder or direct violence in their fantasies, whereas with U.S. children the opposite is the case (28, 29, 33).

But, if the tendency of Indian culture to produce tension and resentment in children is a factor in delinquency, it must be asked why this apparently affects only boys, and only those from the lower class. A partial answer has already been given, but there are still other reasons. Indian girls, whether in Singapore or in their homeland, are kept under strict supervision and are rarely able to escape from the house long enough to commit a theft outside. Moreover, the resentments will more usually be directed against the mother than against society in general, and strong identification with the mother is likely to prevent any expression of hostility directly. Thus the Indian girl has little opportunity for delinquent acts, has little social experience such as would enable her to think of running away and living away from her family, and the resentment must war with the attachment and dependency which the mother has developed. The one aggressive act that is always available to the girl in the circumstances is suicide or attempted suicide (21), and this is what was the commonest event bringing Indian girls to the juvenile court. Suicide, incidentally, was more frequently mentioned than murder or direct assault, in the fantasies collected by Shanmugam, not only by girls but by boys (28, 29).

Middle-class boys did not, in Singapore, show the suicidal gestures of the Indian girls, but there is reason to believe that the outcome of stronger socialization pressures and scarcely less anxiety and resentment was an increase in mental disturbances. Among the student patients seen by the writer in Singapore, the Indian middle-class group showed much more disturbed parent-child relationships and more mental disturbance than the corresponding groups from the Chinese and Malays (20). Moreover, when mental hospitalizations were analyzed by age and social class, the same appeared, for the Indian

middle-class youth, in contradistinction to the Chinese and Malay, showed much higher admission rates than their peers of the lower class or their elders in the same social class (22).³

These points suggest that the pattern of juvenile delinquency in the Singapore Indians can to a considerable extent be linked to features within their culture. Can the same thing be said of the Chinese and Malays? As mentioned previously, the most fundamental aspects of Chinese culture as seen in Singapore are its focus on the family and the emphasis on education of children, both in the formal sense of schooling and in the wider sense of socialization. Children are the means whereby the family will be perpetuated and the means whereby ancestral spirits and one's own spirit after death will be served. Hence Chinese adults behave much more responsibly than Indian ones towards any children that can claim kin to them, whether they be natural offspring, adopted children or more distant relatives.

In these circumstances one would expect little basic delinquency, that is to say delinquency offending family norms, but a relative readiness to break wider social norms if this is in the service of the family. That is what the data show. Delinquency in the Chinese is at a low level except with respect to trading offenses, and in these offenses girls share as well as boys. (Court cases not receiving special investigation were usually Chinese and usually for trading offenses. Hence the frequency of this minor type of offense was much higher among the Chinese than the data used here show.) Moreover, delinquency is much less associated with the broken Chinese family than with the broken Malay or broken Indian one, presumably because distant relatives are more liable in the Chinese community to step in and help the broken family than in the case of the other two groups.

In trading offenses there was an illustration of the fact that when the values and norms of traditional Chinese familism clashed with wider social norms, antisocial behavior in terms of the wider norms could result. Something more needs to be said on this point, lest the reader go away with the idea that traditional Chinese culture is close to ideal as a means of socializing children and preventing delinquency. In the 1950s Singapore was going through marked changes. Traditional family links were becoming less and less adequate as means of furthering individual and family advancement. Moreover, there were considerable numbers of people without family ties, even in the extended Chinese concept of such ties—people who had come alone from China or who had lost their family during the Japanese occupation of the island. In such people socialization to broad community norms was relatively slight. As a result, considerable infringement of laws took place in two main

directions: politically through the activities of antitraditional, revolutionary, left-wing organizations; and, more primitively and traditionally, through the "protection" type of activities of so-called *sécret* societies or gangs. The latter had little effect on juvenile delinquency or on adolescence, as far as could be seen, presumably because there were few children without families or allowed to act independently of their families. The former movement did affect the adolescents, however. Chinese high school pupils participated in many left-wing political activities and organized their own political strikes and lockouts, definitely breaking the laws at times. Yet what is significant is that when the latter occurred, the adolescents claimed to be the true spokesmen of Chinese tradition and of their families, and their families usually supported them (32).

Regarding the Singapore Malays, what is crucial to an understanding of their juvenile delinquency is the emphasis on emotional relationships, particularly that between mother and child, and the relative neglect of material possessions. An orphan child, in this culture, is the object of great pity and concern, no matter how well and tenderly cared for, whereas the ragged hungry child is unlikely to arouse social comment or action as long as he has a reasonably affectionate mother or father. A mother on road to market will spend her household money on sweets for her child, if he asks, even though what Westerners would regard as necessities have to be done without. The closeness between parents and children results in few emotional frustrations or resentments, and usually these will not be strong enough to tempt the juvenile to infringe the known law, but the concurrent neglect of material security can quite easily be seen as leading to delinquency. Since among the Malays, as in many tropical peoples, the idea of private possession of fruit-producing trees or fields is quite weak, prohibitions against taking someone else's food is not strong, especially if one is a child and in need. This casual attitude to property rights, not unnaturally, spills onto other areas of need, and at the same time the culture does not teach the wisdom of saving and planning ahead so that shortages will not arise. Accordingly, one might expect little assault and little in the way of arbitrary, aggressive theft, such as is so common in the U.S., but more in the way of purposeful theft or robbery. Moreover, one would expect such thefts especially to occur from broken families, since while family and neighbors will rally round to assist emotionally, they are usually neither able to assist much economically nor prompt to perceive that economic assistance is important.

These expectations are close to what was found. Assault, incorrigibility (being "outwith parental control"), and trading offenses are very infrequent.

Theft is the commonest offense among boys, and the only recorded offense among girls. Being in need of care and protection is relatively higher among the Malay boys than in the other two ethnic groups, but vagrancy, which would represent running away from family or guardian at that age, is much less high than in the other groups. Attempted housebreaking is not uncommon, either in juveniles or among older youths (judging from hearsay and the newspapers), but the thefts performed in this way were reported to be relatively simple and related to need. The rate of juvenile delinquency for broken homes is probably, judging from Table 7, much higher than that for complete families and, again in accordance with expectation, a review of the data shows that it comprises only theft, housebreaking and cases "in need of care and protection."

Other features of Malay delinquency receive explanation fairly easily from an extension of the foregoing picture. Thus, the absence of a social-class difference in rates reflects the general lack of concern with status, possessions and striving. The sharp peak in adult crime around the age of 20 (data not shown, but derived from analysis of newspaper reports mentioned earlier)⁶ coincides with the key emotional crisis in the Malay's life, the leaving of his parental home and assumption of responsibility for a wife and family. (It is paralleled by a sharp and transient increase in mental hospitalizations.) The four cases of sexual "outraging of modesty," while more than the Chinese and Indians produced, can probably be explained by the early introduction which the Malay boy receives in sex and the casual way in which he treats it. They are likely to represent attempts to visit a girl despite the guard under which she is kept until marriage; not true rape or deviant behavior. Malay life is not all sweetness and light, for the emphasis on parent-child attachments leads to much divorce and subsequent competition for marital partners, and lack of economic planning can lead to much economic misery. It is true, nevertheless, that the upbringing given Malay children leads to relatively little delinquency, either against parental figures or on behalf of such figures against wider society. And the type of delinquency which does result seems to be of a transient, easily handled kind.

F. CONCLUSIONS

When children are referred by the juvenile court in Singapore for pre-trial investigation, it is found that this referred group, presumed to represent potential failures in socialization, are nonrandomly distributed with respect

⁶ *Ibid.*

to a number of familiar variables. They involve boys more than girls, arise more from broken homes than from normal complete families, come more from lower-class than from middle-class backgrounds, and show a roughly increasing incidence with age. Support is thus obtained for the assumption that these correlates of delinquency are general and transcultural, not merely the products of a particular setting.

The main findings of the study, however, have related to ethnic or cultural differences. Such differences are by no means unrecorded in earlier delinquency studies (1, 18, 19), but they have usually gone without explanation, or been attributed to some noncultural characteristic such as minority status. In Singapore an explanation in terms of noncultural variables has been sought but not found, whereas an explanation in terms of specific cultural characteristics has been considerably successful. At one level of interpretation this is neither surprising nor particularly important; it can be taken as merely meaning that yet another category of social variable must be allowed for, though usually only when one is studying people from more than one background. At a deeper level of interpretation, however, it is a finding which calls for considerable reorientation of preventive action.

Most prior concepts of delinquency prevention by social action in the United States and in Europe have focused on those aspects of the delinquent's background that infringe social or cultural norms. The broken family, the slum, the delinquent subculture have all been seen as flaws in the social structure or as temporary disorganizations produced in the course of social change. When the Chinese, Indian and Malay delinquency pictures in Singapore are compared, this concept of the temporary flaw in an ideal society retains some truth. It is true, for instance, that Indian juvenile delinquency might be expected to decline if the Indian population reestablishes family networks, and that trading offenses among the Chinese would to a great extent disappear if the law were brought closer into harmony with public opinion. But, more basically, the patterns of delinquency described have been demonstrably related not to temporary disruptions of cultural tenets alone, but to the very character of these tenets themselves. Indian beliefs in male superiority, in the child being a whole person and in the artificiality and perhaps even dishonesty of strict behavioral consistency are part of their culture (27), not the temporary accidents of social change. Yet they appear to have considerable relevance to the production of delinquency, at least in Singapore. Traditional Chinese beliefs in the supremacy of the family, while particularly beneficial to children, lead to crime and distress when family goals or traditions conflict with those of a wider social unit. Malay

emphasis on emotional values rather than on material ones, while highly admirable in many respects, contributes to the neglect of children's health and to infringements of property rights. It will not be possible to make the Malay more money-minded, or the Indian woman a more efficient educator in the eyes of her sons, without disturbing something which each of these peoples at present thinks of value. In other words, effective preventive action regarding juvenile delinquency in Singapore appears to call not merely for the repair of social hiatuses, but for the changing of cultural values.

This may still seem no great problem. These Eastern peoples, it has often been maintained, must abandon their outmoded value systems and adjust to the modern world. If they do so, delinquency-producing factors, such as the suggested ambivalent position of the woman in Indian culture, could be removed. By modernizing their cultures, the Singapore peoples could look forward to delinquency becoming as slight a problem as—in New York?

If, as appears to be the case, juvenile delinquency is closely related to the basic cultural values in a society, then an application of this finding is called for not so much in Asian cultures, where such delinquency is still small in amount, as in Western ones, notably the United States, where it has become a major social problem. The main conclusion of this paper, therefore, is that if the finding of cultural relevance is accepted for Singapore, a search for a relationship between basic cultural tenets and delinquency should be pursued in countries nearer at hand.

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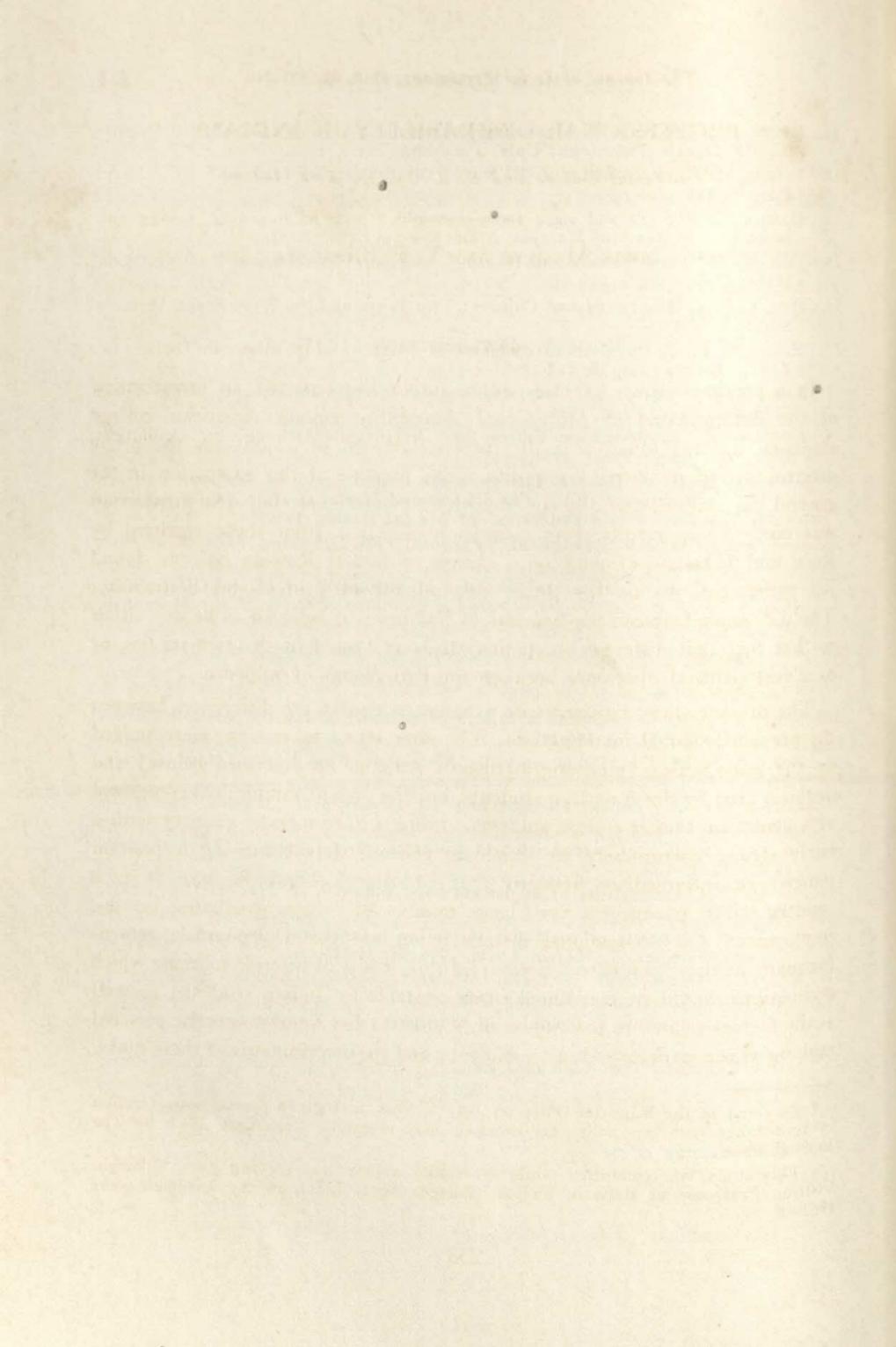
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PROFESSIONAL DESIRABILITY IN INDIA*¹

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A. INTRODUCTION

In a previous study (3) the senior author has reported an investigation of the determinants of professional desirability among American college students. It was found that the material reward of a job was the prime determinant of its rated desirability. The prestige of the occupation in the general population was also an important determinant, but job satisfaction was not. These results were completely different from those reported by Rossi and Inkeles (4) who, on a sample of former Russian citizens, found job satisfaction to be the prime determinant of professional desirability. The difference between the two sets of findings was believed to be due either to that fact that different occupations had been rated in the two studies, or to a real cultural difference between the two groups of subjects.

The present study represents an attempt to resolve the differences between the previously noted investigations. The same set of professions were judged by the same scales (plus one additional scale to be described below) and methods used by the American students, but the present sample was comprised of a group of Indian college students. India is a democratic country with a fairly strong commitment to socialistic policies, thus occupying a position somewhere intermediate between that of America and Russia. It is a country which produces a very large number of college graduates, yet unemployment and occupational dissatisfaction are the disappointing returns for many of these graduates. Because of this, it was of interest to know which occupations would be considered most desirable by Indian students, as well as the factors related to such desirability. Of further interest was the personal ranking of occupations by Indian students, and the determinants of these ranks.

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¹ This study was conducted while the senior author was serving as a Fulbright Visiting Professor at Balwant Rajput College, Agra, India, in the academic year 1962-63.

B. METHOD

1. Subjects

The *Ss* were 90 male students obtained from three colleges in the cities of Agra and Aligarh. Subjects were selected so that an equal number would be obtained from the three educational levels equivalent to freshman, junior, and first-year graduate students in the United States. Each of the principal religious groups found in these colleges—the Hindu, the Moslem, and the Christian—was represented by 30 subjects. The junior author, as part of a thesis for the M.A. degree (1), analyzed the data obtained and found no differences among the educational or religious groups, and it may therefore be concluded that the 90 subjects represent one homogeneous population of Indian male college students.

2. Occupations Rated

The 11 professions used were the same as those used in the previous study with American students. The professions, which were presented on a form written in both English and Hindi equivalents, with additional clarifying information, were Artist (any in the Fine Arts); College Professor; Engineer (Chemical, Electrical, or Mechanical); Minister (or priest or clergy of all denominations); Physician; Physicist; Psychologist; Statesman (elected or appointed in national government, career diplomat); and Teacher (any public or private school teacher); Journalist and Lawyer.

3. Procedure

Each subject was asked to rank the 11 professions in terms of his own personal prestige system. Scoring was 100 points for the highest rank, 90 points for second rank, and so forth down to zero points for last rank.

The subjects were asked to rate each profession on a five-point scale for each of four dimensions according to the following form:

- (1). Taking everything into consideration, how desirable is it to have the occupation of? Very Desirable? Desirable? So-So? Undesirable? Very Undesirable?
- (2). How satisfactory is the material position of the? Excellent? Good? Average? Poor? Very Poor?
- (3). How high is the personal satisfaction of a? Very High? High? Average? Low? Very Low?
- (4). How does the population regard in general? With Great Respect? With Respect? With Indifference? With Contempt? With Great Contempt?
- (5). To what extent can your academic/technical attainments be

utilized in the occupation of? To a Very Great Extent?
To a Considerable Extent? To Very Little Extent? Almost Nil? Detri-
mental to Some Extent?

It should be noticed that the fifth question concerns a dimension not used in the previous study. That study had suggested that personal ranking schemes are significantly related to the professional goals of the person involved, i.e., a student tends to rank as high those occupations which are appropriate to his own course of study. The fifth question was intended to measure the relationship between the education of the subject and the extent to which the subject felt that this education could be utilized in his life, in all the occupations of the study.

It should be noted that each subject was required to rate each of the 11 professions on one dimension before going on to another dimension. This was an attempt to minimize the halo effect often found in investigations which make use of multiple ratings.

Arbitrary scoring weights of 100, 75, 50, 25, and 0 were assigned each of the five response categories.

C. RESULTS AND DISCUSSION

Median ratings were computed for each of the five dimensions and the personal ranking given to each profession by the total sample of 90 students. These are presented in Table 1. In the parenthesis following each median rating is the rank order of that profession on that dimension. The professions are listed in order of their ranking on the General Desirability dimension.

A study of Table 1 seems to show that despite some differences from dimension to dimension, and not including the educational-occupational relationship, a general halo effect seems to be operating. That is, the first three occupations are rated at the top of all dimensions, and the last three occupations listed are generally given the lowest ratings. Apparently the Indian students could not discriminate among the various dimensions as easily as the American sample. This will be more apparent when the intercorrelations among the dimensions are presented, but first the reliability of the scales must be considered.

Since it had been demonstrated that the three subgroups of 30 students of each religion had not differed in the assignment of ratings on these scales, the median ratings obtained from all 90 subjects could be accepted as one estimate of the order of the 11 occupations on each dimension. The reliability coefficient, r_{xx} , developed by Horst (2), is a measure of the degree to which we might expect another set of three subgroups to yield the same average ranks. Thus the following reliability coefficients are measures of the con-

TABLE 1
MEDIAN RATINGS AND RANKS OF 11 OCCUPATIONS ACCORDING TO THEIR GENERAL DESIRABILITY, MATERIAL POSITION, PERSONAL SATISFACTION, POPULAR REGARD, PERSONAL RANKING, AND EDUCATIONAL-OCCUPATIONAL RELATIONSHIP*

Occupation	Ratings				
	General desirability	Material position	Personal satisfaction	Popular regard	Educ.-occup. relat.
College professor	83 (1)	75 (3)	78 (3)	78 (4.5)	78 (1)
Physician	82.5 (2)	89.5 (1.5)	83 (1)	89 (1)	45 (9)
Engineer	81 (3)	89.5 (1.5)	79.5 (2)	85 (2)	49 (7)
Physicist	74 (4)	71 (4)	74 (4)	78.5 (3)	58 (4)
Teacher	71 (5)	45 (10)	67 (7)	67 (6.5)	70.5 (2)
Psychologist	69 (6)	58.5 (7)	65 (8)	66 (8)	59.5 (3)
Statesman	67 (7)	64.5 (6)	62.5 (9)	78 (4.5)	54.5 (5)
Lawyer	61 (8)	70 (5)	57 (11)	61 (9)	43.5 (10)
Artist	58 (9)	51 (9)	73 (5)	67 (6.5)	52 (6)
Journalist	54 (10)	52.5 (8)	59 (10)	54 (11)	46.5 (8)
Minister	37.5 (11)	35.5 (11)	70 (6)	60 (10)	34 (11)

* See text for wording of the questions which elicited these ratings, and for the scoring system. The occupations are listed in order of general desirability.

sistency of the rating scales: General Desirability, .92; Material Position, .95; Personal Satisfaction, .67; Popular Regard, .86; Personal Ranking, .93; and Education/Occupation Relationship, .74. These reliability coefficients are all slightly lower than those found with American students, but are sufficiently high to justify proceeding with a correlational analysis of the ranks obtained.

Table 2 presents the matrix of correlations (*rhos*) obtained from the ranks shown in Table 1. It will be noted that the educational-occupational relationship dimension is not significantly correlated with any of the other dimensions. We were particularly interested in whether this question would produce a significant correlation with the personal ranking of occupations by these subjects; the obtained correlation of .27 is definitely not significant. This shows that these subjects do not necessarily assign high ranks to those occupations for which they are preparing. It gives added credence to the belief that the median ratings given these occupations can be considered an objective report of the evaluation of these occupations in the population of Indian college students.

TABLE 2
INTERCORRELATIONS AMONG RATINGS (RHOS)*

	General desirability	Material position	Personal satisfac.	Popular regard	Educational-occupational relationship
Personal ranking	.88	.87	.48	.64	.27
General desirability		.79	.69	.83	.53
Material position			.54	.76	.07
Personal satisfaction				.78	.14
Popular regard					.28

* Value of rho needed for significance: .05 level = .55, .01 level = .73.

Of the other 10 correlations in Table 2, all but two are significantly different from zero. The highest correlation, .88, between General Desirability and Personal Ranking, would seem to indicate that either the subjects rank occupations according to what they consider their general desirability, or that they cannot discriminate between these two dimensions. The correlations between each of these dimensions and the other dimensions are somewhat different, however. Material Position correlates with Personal Ranking considerably higher than does Popular Regard, while the correlations with General Desirability shows Popular Regard slightly higher than Material Position. One thing is clear, however, and that is that the correlations of each variable with Personal Satisfaction is lower than with any other variable. That is, the subjects appear to consider Personal Satisfaction as quite different

from the other variables, and it is not significantly correlated with Personal Ranking. The total picture seems to agree with the results of the American study: the general desirability of an occupation is determined by its popular regard and material satisfaction more than by the personal satisfaction it offers. The personal ranking of occupations by Indian students is primarily related to the material rewards of an occupation, and not at all related to the personal satisfaction of the job.

A further comparison of the ratings of American and Indian students is interesting. Table 3 shows the comparative ranks of the 11 occupations on the common dimensions, and the correlations between the two sets of ranks.

TABLE 3
COMPARATIVE RANKS OF 11 OCCUPATIONS AS RATED BY INDIAN AND AMERICAN STUDENTS
AND CORRELATIONS BETWEEN RANKS*

	Personal ranking		General desirability		Material satisfaction		Personal satisfaction		Popular regard	
	I	A	I	A	I	A	I	A	I	A
College										
professor	1	2	1	4	3	7	3	4.5	4.5	6
Physician	3	1	2	1	1.5	1	1	3	1	1
Engineer	2	7	3	3	1.5	3	2	9	2	5
Physicist	5	8	4	5	4	4	4	6.5	3	3
Teacher	6	3	5	8	10	9	7	4.5	6.5	7.5
Psychologist	8	9	6	6	7	6	8	6.5	8	9
Statesman	7	6	7	7	6	5	9	11	4.5	7.5
Lawyer	4	5	8	2	5	2	11	8	9	4
Artist	10	11	9	11	9	11	5	2	6.5	11
Journalist	9	10	10	10	8	8	10	10	11	10
Minister	11	4	11	9	11	10	6	1	10	2
Correlations (rhos)	.54		.71		.84		.47		.40	

* The occupations are listed in order of general desirability ratings of Indian subjects.

It can be observed that although we have demonstrated that these two groups of subjects agree on their general ranking of the determinants of occupational desirability they do not, in fact, rank the occupations in the same way on the different dimensions. For example, the American sample placed the engineer seventh in personal ranking while the Indian sample ranked it second. The minister was ranked fourth by the Americans and eleventh (lowest) by the Indians. The correlation between the two sets of personal rankings is .54, just below significance at the .05 level. An even lower correlation, .40, is noted between the popular regard accorded the occupations by the two groups. Again we note the minister ranked tenth by the Indians and second by the Americans. Clearly the jobs which received prestige in

the United States did not necessarily receive prestige in India. Similar large differences can be seen in the way these samples see the personal satisfaction of these occupations, the correlation between the rankings being only .47. All of these results indicate a real cultural difference in the perception of these occupations, particularly that of minister. This undoubtedly reflects the fact that the role of the minister is greatly different in the two nations. The United States is basically a Christian country, and the minister has high status and has important leadership and counseling roles. In India, primarily a Hindu country, the priest represents an inherited, ritualistic, and formalized profession, and he is not important to the religious activities of the majority of the Hindus.

It will be noted, however, that the correlation of .84 between the ranks given on Material Satisfaction is significant at the .01 level, and demonstrates that Indian and American students agree very strongly as to which occupations receive the most and least financial return. This probably indicates the relative similarity of the two nations in rewarding financially the various occupations. The high correlation of .71 between the General Desirability ranks given by the two groups of subjects probably reflects the fact that both groups see material satisfaction as one of the most important determinants of desirability, and they agree on which jobs have material rewards.

D. SUMMARY

This study was conducted in order to understand better the determinants of occupational desirability, and to study the rankings given to occupations by Indian subjects in particular. The principal conclusions which may be made are:

1. Indian students see the popular prestige enjoyed by an occupation as the prime determinant of its rated desirability, with material reward of the job ranking a close second. Personal satisfaction is the least important of these three determinants. This agrees with the findings of the previous study on American students, which found no relationship between personal satisfaction and general desirability.
2. The personal ranking of these occupations by Indian students was also primarily determined by material rewards and popular regard, and is not correlated with personal satisfaction.
3. Indian students do not necessarily give high ranks to those occupations for which they are preparing. Expressed differently, Indian students are studying for jobs which they do not personally rank high and which they do

not believe offer job satisfaction. It is a small wonder, therefore, that many Indians express real dissatisfaction with their jobs after leaving college.

4. Indian and American students agree on the general determinants of occupational desirability, but do not agree^o on the ranking of these occupations on these determinants. This fact, that there are large cultural differences in the perception of these various occupations, makes the agreement on the general determinants of desirability all the more remarkable and more convincing.

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THE RELIABILITY AND VALIDITY OF EDWARDS PERSONAL PREFERENCE SCHEDULE: A CROSS-CULTURAL STUDY*

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A. INTRODUCTION

Interest in the relationship between personality characteristics and occupational choice dates back more than three decades (3). Following the publication of Edwards Personal Preference Schedule (2), there has been a renewed interest in this area. A number of recent studies utilizing Edwards Personal Preference Schedule showed it to be fairly effective in the identification of personality characteristics of a number of vocational and other groups (1, 4, 5, 8).

The present study was undertaken to ascertain if Edwards Personal Preference Schedule (EPPS) could be adapted for use in another cultural setting. The more specific aims of this investigation were, first, to find out the reliability of EPPS and, secondly, to determine if it could differentiate between groups of female liberal-arts subjects, student teachers, and student nurses.

B. METHOD

1. Subjects

The subjects of this study were enrolled in four different institutions, namely, two liberal arts colleges, a College of Nursing, and an Institute of Education in a large cosmopolitan city in India. The total sample of 214 included 62 male and 48 female liberal-arts subjects, 54 female student teachers, and 50 female student nurses. The liberal-arts group consisted of sophomores, juniors, and seniors, the student nurses were all juniors and seniors, and the student teachers were enrolled for the post-graduate degree of Bachelor of Teaching. The subjects ranged in age from 17 to 37 years at the time of administration of EPPS (fall, 1961). The male liberal-arts students, the female liberal-arts students, student nurses, and student teachers had median ages of 17.9, 18.4, 20.9, and 23.2 years, respectively. The median age of the total sample of 132 females was 20.3 years. All of the subjects were proficient in the understanding and use of the English language.

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2. Test

The EPPS is a forced-choice personality inventory. It was developed to measure a number of normal personality variables. In addition to scores on 15 manifest needs, EPPS provides a measure of internal consistency of an individual's overall performance. The names of the manifest needs are those originally used by Murray.

The EPPS was administered to subjects in groups of 25 to 35. Most of the subjects were able to complete the inventory in one hour and ten minutes.

3. Analyses

Answer sheets with a consistency score of less than nine were not considered for analysis. In all, 28 answer sheets or 13 per cent of the answer sheets were eliminated from the data. As a first step, split-half test reliability coefficients were computed for each of the 15 variables over the 97 liberal-arts subjects (43 female, 54 male). The internal-consistency coefficients were corrected by the Spearman-Brown formula.

The sample of 54 male liberal-arts subjects was used only in the calculation of the reliability coefficients.

The validity of EPPS was ascertained by a comparison of the mean scores of 47 student teachers and 42 student nurses with the mean scores of 43 female liberal-arts subjects on each of the 15 EPPS variables. The hypothesis of no relationship between age and the variables on which significant mean differences were found between the groups was tested by the chi square.

C. RESULTS

Internal-consistency coefficients for the 15 EPPS variables are given in Table 1. All of the coefficients were significant at less than the .01 level.

In general the reliability coefficients were lower than those reported by Edwards. This is, however, understandable in view of the fact that reliability coefficients reported in this study were based on a foreign sample, which was, in addition, considerably restricted in size and age range in comparison with Edwards' sample of 1509 subjects.

The data presented in Table 2 show that EPPS was effective in differentiating between groups of liberal-arts subjects, student teachers and student nurses.

The student teachers scored significantly higher on Achievement at less than the .02 level and lower on Autonomy at less than the .05 level than did liberal-arts subjects. The student nurses scored significantly higher on Order-

TABLE 1
COEFFICIENTS OF INTERNAL CONSISTENCY FOR THE EPPS VARIABLES

Variable	Edwards' college normative group (N = 1509)	Liberal Arts group* (N = 97)
Ach.	.74	.58
Def.	.60	.60
Ord.	.74	.74
Exh.	.61	.69
Aut.	.76	.56
Aff.	.70	.47
Int.	.79	.50
Suc.	.76	.79
Dom.	.81	.62
Aba.	.84	.71
Nur.	.78	.55
Cha.	.79	.76
End.	.81	.71
Het.	.87	.55
Agg.	.84	.72

* All correlation coefficients significant at less than the .01 level.

TABLE 2
COMPARISON OF LIBERAL-ARTS SUBJECTS, STUDENT TEACHERS, AND STUDENT NURSES
ON THE NEED SCALES

Variable	1. Liberal- arts subjects (N = 43)		2. Student teachers (N = 47)		3. Student nurses (N = 42)		<i>t</i> 1 vs. 2	<i>t</i> 1 vs. 3
	Mean	SD	Mean	SD	Mean	SD		
Ach.	14.51	3.10	16.36	4.00	14.55	3.36	2.41**	.05
Def.	14.07	3.46	13.70	3.64	15.36	2.95	.48	1.82
Ord.	13.26	4.50	14.89	3.74	15.31	3.50	1.86	2.32*
Exh.	10.88	3.27	11.34	2.86	12.69	3.55	.70	2.41**
Aut.	12.91	4.32	10.96	3.66	11.69	3.47	2.29*	1.41
Aff.	13.67	3.25	13.83	3.87	14.36	4.09	.20	.84
Int.	16.37	4.52	16.77	4.12	15.48	4.66	.43	.89
Suc.	12.47	5.28	11.26	4.15	10.29	3.76	1.20	2.16*
Dom.	14.54	3.93	14.75	4.46	13.55	3.78	.23	1.17
Aba.	16.37	4.97	17.26	5.16	16.10	4.79	.82	.26
Nur.	17.44	3.76	17.92	3.76	17.00	3.87	.59	.53
Cha.	16.33	4.77	16.43	3.94	17.62	3.98	.11	1.34
End.	16.02	4.81	16.77	5.28	16.50	4.62	.69	.46
Het.	7.07	5.19	5.48	5.06	6.21	6.93	1.45	.64
Agg.	14.09	3.78	12.30	4.82	13.24	3.48	1.93	1.07

* $p < .05$.

** $p < .02$.

line and Exhibition at less than the .05 level and .02 level, respectively, and lower on Succorance at less than the .05 level. Chi-square values computed to test the hypothesis of no relationship between age and EPPS variables were much lower than the values needed to be significant at the .05 level.

D. DISCUSSION

Despite the fact that EPPS was developed and standardized on a population very different from the one on which this study was based, it stood up well in another cultural setting. It differentiated effectively both the student teachers and the student nurses from the liberal-arts students. The differences in personality characteristics between student nurses and liberal-arts students were more marked than those between student teachers and liberal-arts students.

A comparison of the results of this study showed a measure of agreement with the results reported elsewhere. For example, Guba, Jackson, and Bidwell (4) compared the personality characteristics of four samples of 297 student teachers and five samples of 209 teachers, with 10 years of service, with Edwards' normative sample of college women. They found significantly higher Achievement scores ($p \leq .05$) in the case of student teachers from two out of the four institutions, including a University of Chicago group. However, no significant difference was found on Achievement between any of the five samples of 209 teachers-in-service and Edwards' normative sample of college women. In a recent study, Kuhlen (6) also found no significant difference in Achievement between a group of 91 teachers-in-service and Edwards' normative group. Guba, *et al.* (4) considered higher Achievement score as indicative of a certain measure of correspondence between personality characteristics and institutional demands rather than something typical of student teachers and teachers-in-service. Considering that admission to the Institute of Education in India is available only to students with high academic achievement, the interpretation of a higher Achievement score as indicative of a certain amount of congruence between personality characteristics and institutional demands seems to be quite pertinent and consistent with the findings of this study.

Lower Autonomy scores for student teachers reported in this study were found by Guba, *et al.* (4) to be characteristic of student teachers from a Southern Negro college, and also of experienced teachers who had been trained in public teacher's colleges.

In recent years a number of studies have reported on the need structure of nurses. Zuckerman (9) compared 63 sophomore student nurses with Edwards' normative sample of college women. He found student nurses to be significantly higher on Abasement ($p < .001$) and Nurturance ($p < .01$), and lower on Dominance ($p < .001$) than the normative sample. The personality characteristics of the student nurse reported in this study show little agreement with those reported by Zuckerman.

In another study, Navran and Stauffacher (8) compared a group of 167 experienced nurses (mean age 33.29) working in four VA general medical and surgical hospitals in the Pacific Northwest, with Edwards' normative sample. They found the two groups to be significantly different on eight EPPS variables, including higher Orderliness and lower Succorance scores, both at less than the .001 level. Thus, on two of the EPPS variables, namely Orderliness and Succorance, the student nurse in this study resembled the older and more experienced nurse. This partial resemblance in personality characteristics between the two groups could be merely a matter of coincidence. On the other hand, it might be that higher Orderliness scores of the student nurses in this study are indicative of the great degree of emphasis placed on such things as neatness, planning, organization, and the like as part of the training in a professional College of Nursing.

Higher Nurturance scores for student nurses reported by Zuckerman (9), lower Succorance scores for older and working nurses reported by Navran and Stauffacher (8), and lower Succorance scores for the student nurses found in this study pose some difficult problems for interpretation. It might be that training and experience tend to make a nurse both less nurturant and less succorant.

E. SUMMARY

This study described an investigation which attempted to test the reliability and validity of the Edwards Personal Preference Schedule in a cross-cultural setting. The total sample was comprised of 214 subjects enrolled in four different institutions in a large cosmopolitan city in India. The reliability coefficients for each of the 15 EPPS variables computed over a sample of 43 female and 54 male liberal-arts subjects were found to be significant at less than the .01 level. For purposes of validation, EPPS scores of 47 female student teachers and 42 student nurses were compared with those of 43 female liberal-arts students. The student teachers scored significantly higher on Achievement and lower on Autonomy than liberal-arts subjects. The student nurses scored significantly higher on Exhibition and Orderliness and lower on Succorance than liberal-arts subjects.

The implications of the comparison of the present findings with those based on U.S. samples were discussed.

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ACQUIESCENCE AND "IDENTIFICATION WITH THE AGGRESSOR" AMONG ACCULTURATING AFRICANS*

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A. INTRODUCTION

The problem considered in this paper is part of an inquiry into psychological aspects of the acculturation process in an East African society undergoing extensive and relatively rapid sociocultural change. The society is that of the Banyankole tribe, an Inter-lacustrine Bantu kingdom now part of newly independent Uganda. The research project of which the present study is a part encompasses a search for personality and personal history variables which contribute intragroup variability in response to acculturative pressures, as well as a delineation of the response differences *per se*.¹ The present paper is focused on a description of the individual differences in attitude among members of the society toward their own tribe, and examines the extent to which attitudes of the Banyankole themselves resemble the attitudes toward the tribe expressed by resident Europeans employed in the Uganda civil service. At the time the data to be discussed here were collected, British administrators and educators were the primary purveyors and mediators of European culture.

Central to the analysis to be presented is the hypothesis that as the behavior of colonial peoples comes to resemble the behavior of their colonial "masters" (i.e., as acculturation proceeds) the ethnic attitudes and stereotypes prevalent among the latter may be assimilated by the former. If, as is sometimes the case, those attitudes are negative and the stereotypes derogatory, a seemingly paradoxical phenomenon occurs. Members of the target group are found to share disparaging beliefs about themselves, even when the beliefs are based

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¹ The research project of which this study is a part was originated in 1959 during the writer's tenure as a Fellow of the Ford Foundation Foreign Area Fellowship Program. That program provided the opportunity to conduct field work during 1959 and 1960 in Uganda. Work in Uganda was greatly facilitated by the personnel of the East African Institute for Social Research at Makerere College in Kampala. Preparation of this report was supported by the Social Science Research Council.

on the incomplete (and often distorted) perceptions of ethnocentric outsiders. A comparable phenomenon has been noted in complex industrial societies where members of ethnic minorities in process of assimilation are found to share the negative stereotypes prevalent in socially-dominant ethnic strata (e.g., 2, 6). Such phenomena have occasionally been interpreted in terms of the concept "identification with the aggressor" (4) or as a manifestation of shifting reference group. A major purpose of the present study was to determine whether a similar assimilation of negative ethnic attitudes is an aspect of acculturation in a society where the newly dominant culture has been imported and where the primary agents of acculturation are in a numerical minority. To this end, identical attitude questionnaires were administered to a sample of male, adult Banyankole and to a sample of adult Europeans employed in administrative and educational positions in the Ankole District of what was then the Uganda Protectorate.

The Likert-format questionnaire consisted of 23 opinion statements in which the referent was either "the Banyankole," "most Banyankole," or merely "Africans." In the case of the 68 Banyankole respondents, the statements were read aloud to them in the course of an individual, face-to-face interview conducted by the writer, a non-African probably classified by most Banyankole as a "European." The respondents indicated degree of agreement or disagreement with each statement. Whenever necessary, as the statements were read by the interviewer, they were translated into a respondent's native language by a native interpreter. European respondents were administered the questionnaire by mail and they completed it as a paper-and-pencil task. Of 87 Europeans who received the questionnaire, only 36 returned it, and of these, only 28 completed the task. Resultant problems in interpreting the data, obtained from the Europeans who cooperated, will be discussed below. For the moment, it suffices to point out that neither method of administration employed in this study was free from methodological difficulties, and these difficulties should be considered in any attempt to interpret the data. A major purpose of this paper is, in fact, to consider some of the practical and methodological difficulties inherent in cross-cultural attitude research of the type reported here.

B. METHOD

1. *The Questionnaire*

The questionnaire consisted of 23 statements of opinion about the Banyankole, with a set of four response alternatives, *Strongly agree*, *Agree*, *Disagree*, and *Strongly disagree*, provided with each statement. Twelve of the state-

ments were worded in the positive direction (i.e., pro-Banyankole) and 11 in the negative direction. The items were first arranged in a haphazard order, which was then fixed for all administrations. The items, in the order in which they were administered to every respondent, are presented in Table 1.

TABLE 1
OPINION STATEMENTS EMPLOYED IN THE ATTITUDE QUESTIONNAIRE

1. There is no job now being done by a European civil servant that couldn't be done equally well by a properly trained Munyankole.
2. The people of Ankole are capable of attaining a very high level of civilization.
3. It is a sheer waste of time and money to try to educate the Banyankole.
4. A Munyankole medicine man can probably effect cures of certain diseases.
5. Africans are an inherently inferior race.
6. Africans are worthy of respect by Europeans.
7. Africans can't appreciate the value of money.
8. Most Banyankole are lazy.
9. Most Banyankole lack standards of morality.
10. The Banyankole are honest and trustworthy.
11. African civil servants should receive the same basic salaries as Europeans doing an equivalent job.
12. If Europeans would give the Africans more responsibility the Africans would prove capable of handling it.
13. The average Munyankole is as intelligent as the average European.
14. The Banyankole are warm and friendly people.
15. An African should be treated like a child by a European for the African's mind is like a child's.
16. Africans are lazy, shiftless, and superstitious.
17. The Banyankole are eager to acquire education and improve their standard of living.
18. The average African has no respect for his wife or children; he just thinks of them as property.
19. The Mbarara sports club should open membership to educated Africans.
20. When Independence comes to Uganda, this country will fall apart.
21. If given proper incentives, the Banyankole could work as hard as any people.
22. African incomes should be kept low, since they only squander money.
23. If it hadn't been for Europeans, Ankole would be no more.

Note: For scoring purposes, items considered pro-Banyankole: 1, 2, 4, 6, 10, 11, 12, 13, 14, 17, 19, 21.

2. *The Samples and Methods of Administration*

The Banyankole respondents were all male adults chosen as part of a 1-in-1000 sample to be employed in a study of psychological aspects of acculturation. The total sample consisted of 121 Banyankole ranging in age from 16 to 71, and while a genuinely random sample was neither achieved nor sought, the sample is roughly representative of the adult, male population with respect to age, occupation, and residence. Each of 10 counties (*sazas*) in the Ankole District was represented in the sample in approximate proportion to the population distribution. All occupations known to exist in

Ankole were also represented in approximate proportion to the population figures. Deliberate departures from representativeness were made, in the direction of overrepresenting the segment of the population that might be expected to have had a greater than average number of European contacts; thus, younger men engaged in nontraditional occupations, living closer to administrative, commercial, and educational centers, appear more frequently in the sample than they would have, had a truly representative sample been sought. This deliberate departure from representative sampling reflects the purpose of the research, which was to study individuals in the process of acculturation. In terms of Doob's classification scheme (3) the total sample includes, in roughly equal numbers, individuals who are "unchanged" and "changing," plus a few who approach being "changed," while a representative sample of Banyankole would most likely have been dominated by persons in the "unchanged" category.² The sample to which the attitude questionnaire was administered consists of only the last 68 persons interviewed in the total sample of 121, because plans for this phase of the research project were not formulated until the investigator had completed several months in the field. (During that period, several changes in instrumentation and technique were made, reflecting the occurrence of new hunches, some of which were convertible to testable hypotheses.) Thus, the sample which provided the data being considered in the present paper is made up of approximately half of the sample described above. Although smaller than the total sample, it is similar to it in nature and degree of representativeness.

The actual selection of respondents occurred as follows. With the aid of large-scale government maps, a particular cluster of homesites (villages in the usual sense of the term are nonexistent in Ankole) would be chosen for a given day, and on that day the investigator and his interpreter would appear unannounced to seek out an individual of a given age, living in a particular kind of house. (House types vary with wealth and, to an as yet undetermined degree, with acculturation.) The first person to suit the criteria in effect that day would be approached, greeted, shown a letter of introduction from the Prime Minister of Ankole, and asked if he would spend a few hours in conversation. If he agreed, the interview would begin as soon as the

² As I have argued elsewhere (7) it is difficult, if not impossible, to find an individual in East Africa today whose behavior is not in some respects European-like. Accordingly, as Doob's category labels (unchanged, changing, changed) are used here, they should be interpreted respectively to mean (a) displaying predominantly traditional behavior with only subtle manifestations of European influence, (b) displaying considerable behavior of European origin in the context of traditional behavior, and (c) behaving very much like a European, albeit with some apparently tradition-influenced reinterpretations.

preliminary rituals of hospitality were completed. It was seldom necessary to modify the selection procedure due to failure to find an individual who suited the criteria in effect on a given day; the refusal rate among those approached was a surprisingly low one per cent, and only three persons who entered into an interview terminated it prematurely.

The interview typically required four hours to complete (interview times ranged from approximately two hours to approximately seven hours, including socializing and dining) and the attitude questionnaire was always administered at the end of the interview. It might be supposed that respondents were fatigued by this point, and thus tended to give less than carefully considered responses to the questionnaire items. However, it was rare indeed for a respondent to show signs of tiring. Most seemed willing to extend the interview beyond either the wish or the fortitude of the interviewer. Also, while items of the particular format employed in the attitude questionnaire were not included in the preceding interview material, the prior interview experience very likely made the attitude questionnaire a less curious experience than it might otherwise have been. Furthermore, because the questionnaire was administered at the end of a several-hour-period of interviewing, the sincerity of responses and consequently the validity of the questionnaire may actually have been enhanced. In the course of interviewing, if the interpreter detected what he considered to be an evasive or less-than-frank reply, he would endeavor to impress the respondent with the importance of an honest answer and the lack of reason for anything other. Insofar as this endeavor succeeded, sincerity should have been characteristic of the attitude-questionnaire responses to the same extent as it was of the interview responses. That the endeavor was not altogether successful will be shown below, but for the present it should be noted that efforts were made to minimize departures from frank responding reputed to be encountered commonly when African respondents are queried by non-African investigators (1).

The European sample consists of 28 persons who complied with a written request sent to 87 to complete the questionnaire anonymously and return it to the investigator in a stamped, addressed envelope. Since the 87 recipients constituted the total population of resident adult Europeans, the 28 respondents constitute a large, but more importantly, a self-selected sample of that population. There is unfortunately no way of knowing how representative of that population the sample is. However, there are reasons to believe that the respondents tend to be somewhat more pro-Banyankole than the population as a whole. These reasons will be discussed after a presentation of attitude scores and the results of secondary data analyses.

C. RESULTS AND DISCUSSION

Responses to the 23 Likert-format items were quantified in the usual fashion, on a four-point scale, the direction of which depended upon the direction of item wording. A respondent's attitude score was simply his median response so quantified. Attitude scores thus could range from 1.00 (maximally pro-Banyankole) to 4.00 (maximally anti-Banyankole). The actual range of scores for the African sample was 1.00-3.82; for the European sample the range was 1.22-3.65. If the ranges of scores for the two samples were similar, the distributions of scores were markedly different. These distributions are shown in Figure 1. The African distribution is a J-curve, with an

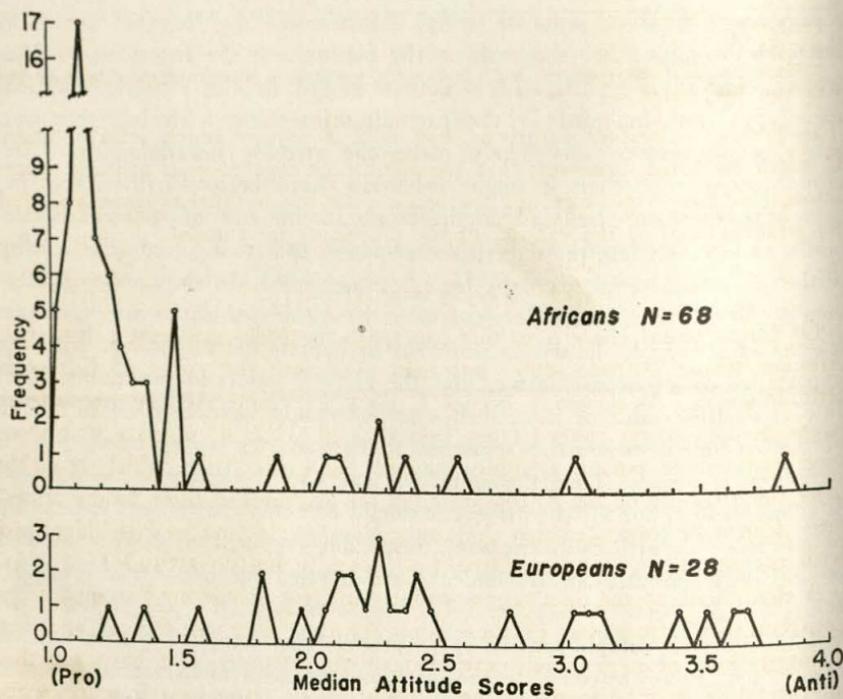


FIGURE 1
FREQUENCY DISTRIBUTIONS OF ATTITUDE SCORES

extreme, positive skew. The European distribution, on the other hand, is symmetrical, tending toward rectangular.

Fifty-nine of the Africans (87 per cent of the African sample) had attitude scores below 1.60, a score surpassed by all but three of the Europeans (10 per

cent for that sample). Summary statistics for the two samples based on scores displayed in Figure 1 are presented in Table 2.

The data in Table 2 clearly indicate that the African respondents as a group scored considerably more pro-Banyankole than did the Europeans.

TABLE 2
MEAN, VARIANCE AND OTHER STATISTICS BASED ON MEDIAN ATTITUDE SCORES

	<i>N</i>	African sample 68	European sample 28
Range		1.00-3.82	1.22-3.65
Median		1.18	2.27
Mean		1.37	2.41
SD		.506	.635

$t = 8.43^*$

$p < .01$.

* Since assumptions required for t test were not met, a nonparametric median test was also performed. $\chi^2 = 34.08$, $p < .01$.

This finding is neither surprising nor does it require much interpretation. It might be noted, however, that the significant difference in attitude scores across these two extreme groups provides at least the minimal evidence required for establishment of the validity of the measuring instrument.

1. *The Deviant Africans*

Of fundamental concern in this paper are the performances of those few Africans whose attitude scores put them well into the range of European attitude scores. As shown in Figure 1, there were nine African respondents whose median scores ranged from 1.88 through 3.82. It appears that these nine Banyankole possess attitudes toward their own tribe which resemble more the attitudes of the Europeans than the attitudes of their fellow tribesmen. Can it be concluded that these nine Banyankole have in fact "identified with the aggressor," and acquired his generally hostile attitude?

A closer look at the data suggests that with few exceptions the apparently anti-Banyankole responses of these nine Africans were artifactual and not manifestations of a genuinely anti-Banyankole attitude. The basis for this interpretation may be found in the distributions of response-style scores, particularly one which constitutes an index of a tendency to agree with questionnaire items irrespective of their content. This index, the familiar Acquiescence score (8), was calculated separately for each respondent and is simply the proportion of *Strongly agree* and *Agree* responses. While this deviant group of nine Africans have attitude scores similar to those of the 28 Europeans, the Africans were considerably more acquiescent. Comparisons of the per-

formances of the Africans with those of the Europeans are presented in Table 3.

These Africans were not only significantly more acquiescent than the Europeans, their mean Acquiescence score was high in an absolute sense.

TABLE 3
COMPARISON OF ACQUIESCENCE SCORES

<i>N</i>	Anti-Banyankole 9	Africans 28	Europeans 28
Acquiescence Mean	.74	.48	
<i>SD</i>	.12	.10	

$t = 5.65$.

$p < .01$.

Since 12 of the items were worded in one direction and 11 in the other, a respondent who was totally free from either an acquiescent or negativistic response-set theoretically should have earned an Acquiescence score of .48 or .52, depending on whether he were himself anti- or pro-Banyankole. The European mean Acquiescence score was .48, while the score for the nine Africans was .74, well into the acquiescence range. (On the average, these nine Africans agreed with 17 of the 23 statements.) Only one of the nine had an Acquiescence score below .57, while six of them had scores of .74 or above. It thus seems reasonable to propose the hypothesis that their apparently anti-Banyankole attitude scores were a result of their tendency to concur passively with the attitude items. For three of the nine in this deviant group, the hypothesis is tenuous, for their acquiescence scores indicate that they earned their anti-Banyankole attitude scores without indiscriminantly agreeing with items regardless of their content. On the other hand, the hypothesis is certainly not ruled out, particularly when it is applied to the performance of the remaining six members of this group. The hypothesis receives further support from the fact that the Acquiescence mean score of the other 59 African respondents, whose attitude scores justify their being classified as pro-Banyankole, was .64, a level significantly lower than the Acquiescence mean score of their deviant tribesmen.

It has often been suggested (e.g., 1) that the normal problems of irrelevant sources of variance in attitudinal responses are severely aggravated in African societies. Biesheuvel has implied that acquiescent tendencies in particular might be rampant among some cultural groups in Africa since culturally sanctioned "politeness toward strangers may prescribe . . . the avoidance of anything that, by the standards of local custom, could offend." Biesheuvel further suggested:

When the questioner belongs to a dominant group, which practices social and political discrimination and to which Africans are expected to defer, responses are likely to be influenced by inhibitions lest one offend against traditional relations, by fear of being victimised for criticising the established order, by the desire to please and to give the approved answer, or by attempts to air a grievance or to slant responses toward some desired end.

The danger thus exists of the naive investigator's being misled by accepting responses at face value.

In the present study, there was, as Biesheuvel might have predicted, a tendency for the Banyankole sample as a whole to acquiesce, but this tendency was both easily detectable and not so general as his warnings might imply. As shown in Table 4, 20 African respondents (29 per cent) provided response protocols that seem to be item content-determined and two others provided evidence of negativism in their responses. Twenty-five others (37 per cent), all of whom scored pro-Banyankole in attitude, were somewhat acquiescent, while 21 (31 per cent) were acquiescent to a very marked extent. Thus the tendency among Banyankole respondents to agree indiscriminantly with the items, although serious, was not universal.

TABLE 4
FREQUENCY DISTRIBUTION OF ACQUIESCENCE SCORES

Acquiescence scores	Pro-Banyankole Africans	Anti-Banyankole Africans	All Africans	Europeans
Negativistic (.30-.45)	2	0	2 (3%)	13 (46%)
Content-determined (.46-.60)	17	3	20 (29%)	13 (46%)
Somewhat acquiescent (.61-.70)	25	0	25 (37%)	1 (4%)
Very acquiescent (.71-1.00)	15	6	21 (31%)	1 (4%)

The seriousness of this tendency, as was already noted, is indicated by the fact that six of the highly acquiescent Banyankole respondents earned attitude scores that make them appear to be anti-Banyankole. Of course, the available data do not rule out the possibility that these six Banyankole are genuinely anti-Banyankole, but caution seems to dictate maintaining the admittedly less substantive interpretation offered above.

A final word on this matter is in order. If acquiescence can be a sufficient condition for a respondent's emerging with an anti-Banyankole score, it is

not a necessary condition. Three Banyankole and practically all of the Europeans in this study earned anti-Banyankole scores without being acquiescent. Moreover, an anti-Banyankole score is not a necessary result of acquiescence, since 15 Banyankole respondents were highly acquiescent yet earned pro-Banyankole scores. However, the relationship found in this study between acquiescence and anti-Banyankole score among nine Banyankole respondents was strong enough to cast serious doubt on the validity of the scores of six of them.

2. *The Europeans*

The range of attitude scores of the 28 Europeans who responded to the questionnaire was essentially rectangular, covering almost entirely the possible range, with some clustering near the midpoint of the scale. On the basis of only this set of scores, it would have to be inferred that the European population in Ankole is highly variable in attitude toward the Banyankole, with about half of that population feeling neither strongly anti- nor strongly pro-Banyankole, and the balance distributed about evenly at or near both extremes. Before investing confidence in such an inference, however, two methodological considerations must be explored.

The first of these derives from the sampling problem encountered. As was noted above, the 28 European respondents constitute a self-selected sample. The usual problems this presents were probably operative in this study, plus some additional ones which derive from local conditions. The data were collected at a time when the impending independence of Uganda was a highly salient topic among expatriot civil servants, who viewed it with a mixture of fear, uncertainty, and resentment. Partly as a result of the general mood created by this situation, the investigator was regarded by many Europeans as a vague kind of threat. The exact nature of his work was somewhat of a mystery, his social interactions with Africans in a setting in which *de facto* racial segregation in social affairs persisted was suspect, and his dual identification as an American and a social scientist was disturbing. (American foreign policy was often vigorously criticized in conversations with the investigator, with frequent references to Suez and the American (reputedly) holier-than-thou attitude with respect to former colonial powers.) As a result of this and possibly other factors, the sudden appearance of a questionnaire obviously designed to measure Europeans' attitudes toward the Banyankole led to an explosive reaction. A meeting of the European community was held at the European club, at which the question of an organized reaction to the questionnaire was heatedly debated. (The investigator was not present

at this meeting, of course, but an account of the meeting was subsequently provided by a sympathetic European.) A segment of the community vigorously opposed responding to the questionnaire on various grounds, including the possibility that the responses would be employed in an act of political intervention. It was reported that the investigator was sequentially accused of being a communist, an agent of the American government, and a journalist intent on preparing a sensationalistic exposé of the sex life of colonial Englishmen. Some feeling was expressed that his visa be revoked, and this suggestion actually reached the responsible officials who subsequently gave it careful consideration. Compounded with this ill feeling was the less emotional, but equally significant, opinion that the "American" method of social scientific research, characterized by opinion polling and multiple-choice questionnaire surveys, is at best worthless, and at worst, seriously misleading. The meeting was reported to have concluded with the recommendation that individuals decide for themselves whether to respond or not, amid public declarations by many that they would not. In fact, two-thirds of the questionnaire recipients either did not reply at all, returned empty questionnaires, or sent heated letters in place of the questionnaire.

It seems reasonable to infer from this that those who did respond were persons who were less upset by the investigator's research efforts. If it is also reasonable to assume that such persons were those who tended to feel less negatively disposed toward the Banyankole (a highly inferential but plausible assumption), there would be reason to suppose that the distribution of attitude scores obtained is biased in the pro-Banyankole direction. In any case, since the sample was self-selected, and the data were collected in the tension-laden situation just described, no attempt to generalize from the sample to the population is justified.

Some manifestations of the feelings attributed to the Europeans in the preceding paragraphs may have appeared in the response protocols of the 28 European respondents. For example, as is shown in Table 4, nearly half of the European respondents earned Acquiescence scores which indicate a tendency to *disagree* indiscriminately. This response set, negativism, might well have reflected any number of hostile tendencies directed toward the investigator or his research. In this regard, it is interesting to note that the negativistic European respondents tended to emerge with less anti-Banyankole attitude scores than did those European respondents who were not negativistic. The relation between attitude scores and Acquiescence scores for the Europeans is illustrated in Table 5. (A chi-square test falls short of significance.) If, as was pointed out earlier, some African respondents earned relatively

TABLE 5
EUROPEAN ATTITUDE SCORE AND ACQUIESCENT SCORES

	Negativistic	Content-determined	Acquiescent
Attitude			
Below median (more pro)	8	5	1
Above median (more anti)	5	8	1

anti-Banyankole attitude scores as a result of an acquiescent response set, some European respondents seem to have earned relatively pro-Banyankole scores as a result of a negativistic response set. Accordingly, the outcome of this secondary data analysis, which was focused on response style variables rather than on the attitude scores, casts serious doubt on the apparent overlap of African and European attitude scores distributions. Were that overlap less questioningly genuine, it would have been appropriate to engage in theoretical speculation as to the mechanism whereby members of target groups come to manifest the hostile attitudes of a dominant outgroup. However tempting it might have been so to speculate on the basis of the attitude scores obtained in this study, the obtained relation between response style and attitude scores demands restraint.

3. Other Response-Style Variables

In addition to the attitude score and Acquiescence score computed for each respondent, three other response style scores were computed. These were: (a) a measure of interitem response variability; (b) the proportion of scorable responses (occasionally a respondent failed to choose one of the four alternatives provided with each item); and (c) the proportion of extreme (*Strongly agree* or *Strongly disagree*) responses.

a. *Interitem response variability.* The standard deviation of responses scored 1, 2, 3 or 4 was computed for each respondent and constitutes the index of interitem response variability employed in this study. The mean index for the African respondents was .97; for the Europeans it was .93. In terms of this index, the two groups responded in similar fashion to the items.

b. *Proportion of scorable responses.* Only two of the 68 Africans failed to respond to every item, and both of them did so only once. Five of the 28 Europeans failed to respond to every item (two skipped four items each, one skipped two items, and two skipped one each). While the proportion of scorable responses for each group was very high, there was some tendency for the Europeans to balk at responding, a tendency that might well be

related to the negativistic tendencies noted in many of their protocols. Indeed, the two Europeans who each skipped four items had Acquiescence scores of .30 and .35, and the one who skipped two items had an Acquiescence score of .39, all on the negativistic side of the Acquiescence dimension.

c. *Extremity.* The proportion of scorable responses that were either *Strongly agree* or *Strongly disagree* responses was computed for each respondent and constitutes the index of extremity employed in this study. The mean Extremity score for the Africans was .83, for the Europeans it was .45. The difference is significant beyond the .01 level. Thus, the African respondents clearly tended to avoid the more qualified response alternatives, while the Europeans typically employed those alternatives at least as often as they did the extreme ones. This finding is in accord with what has already been noted about the contrasting response styles characteristic of the African and European groups. With a few unimportant exceptions, the African respondents tended to respond to every item, to be acquiescent, and to choose the unqualified response alternatives. In general, then, they did seem to be attempting to appear cooperative. The Europeans, on the other hand (again with individual exceptions), balked at responding to some items, were negativistic, and rather frequently responded in a qualified way. They, in general, appeared to resist the effort to measure their attitudes. Clearly, these contrasting response styles must be taken into account when interpreting the obtained attitude scores.

4. *The Measuring Instrument*

Another matter of considerable concern in a study of this nature is the extent to which the instrument used was cross-culturally applicable. In essence, the methodological question is whether the instrument is the same instrument for the two cultural groups. If the items have different connotations in the two groups (the likelihood of which may be enhanced when translation is employed), obtained differences in scores will, to some extent, merely reflect the different ways the items were understood. This problem was treated in the present study via a scalogram analysis in the manner of Guttman (5).

A pro-Banyankole item was considered "passed" by a respondent if he agreed with it; an anti-Banyankole item was considered "passed" whenever a respondent disagreed with it. The proportion of persons passing each item was then computed separately for each sample. Within each sample, the items could then be ranked in terms of proportions passing them. This simple step revealed that the item orders were somewhat different for the two groups. These are shown in Table 6. The most striking difference is that nearly all

the anti-Banyankole items were, for the Africans, most difficult to pass, while, for the Europeans those items were, as a group, no harder than the pro-Banyankole items. Since to "pass" an anti-Banyankole item a respondent must disagree with it, it should be clear that the difference in item orderings must, at least in part, reflect the relatively acquiescent tendencies of the African sample. In other words, their general tendency to agree with anti-Banyankole items make such items appear to be much less easy for them to "pass" than for the Europeans. The result of this, in terms of a Guttman analysis, is that the total set of 23 items is a different scale for each group of respondents.

TABLE 6
ITEMS ARRANGED IN ORDER OF ASCENDING PRO-NESS^a

		<i>African sample</i>																					
2	21	12	6	17	11	14	19	22	3	10	13	1	20	15	4	16	9	7	23	18	5	8	
		<i>European sample</i>																					
17	14	3	22	6	4	5	15	11	23	7	9	16	21	18	19	12	10	2	20	8	13	1	

^a Determined empirically by proportions passing each item, where a pass is defined as a response scored 1 or 2.

Note: Italicized item numbers refer to anti-Banyankole items.

If the positively worded items were considered separately from the negatively worded items, thus parcelling out the general tendency of the Africans to "fail" the negatively worded items, more consistency across the groups could be seen than is apparent in Table 6. For example, among the positively worded items, both groups found items 6, 17, 14, and 4 relatively hard. Among the negatively worded items, both groups found items 3 and 22 relatively easy, and items 18, 20, and 8 relatively hard. In spite of these consistencies, however, it cannot be claimed that the items were scaled similarly enough by both groups of respondents to be considered the same instrument for both groups.

Certain differences in item ordering cannot even be explained solely in terms of the Africans' relative reluctance to disagree. For example, item 2 was the easiest of all for the Africans to pass and one of the hardest for the Europeans to pass. (That item read: *The people of Ankole are capable of attaining a very high degree of civilization.*) Conversely, a very hard item for the Africans to pass was item 5 (*Africans are an inherently inferior race*). While the Africans agreed, most Europeans disagreed, so that for the latter group, that item appeared relatively easy to pass. Additional examples of such discrepancies could be noted.

Overall, then, it must be concluded that the 23-item scales were different for the two groups of respondents; moreover, the 23 items did not constitute

very good scales for the two groups considered separately. While reproducibility coefficients were .89 for the Africans, and .85 for the Europeans (all items included, and ordered solely in terms of proportion passing), there were many high-error items revealed by both analyses. These items included 5, 7, 9, 15, 18, and 23, all, interestingly, negatively worded. In addition, item 4 (*A Munyankole medicine man can probably effect cures of certain diseases*) clearly did not scale at all. On the basis of the Guttman analyses then, it must be concluded that the instrument employed here elicited different responses from the two groups in part merely because the items in the instrument were interpreted differently by the two groups. In other words, the instrument was not culture-free. In addition, the Guttman analyses confirmed conclusions based on the response-style analyses reported above, namely that an acquiescence response set contributed significantly to the Africans' acceptance of the negatively-worded items.

For all of this, the reliability of the instrument in each case, as inferred from the moderately high reproducibility coefficients, must be reasonably high. Moreover, that the instrument discriminates between the two groups in the obviously appropriate direction provides some confidence in its validity. Accordingly, this analysis of the instrument concludes with the claim that attitudes toward the Banyankole have been assessed, albeit in a fallible manner. The instrument was sensitive to the underlying attitude it was intended to measure, but it was also sensitive to differing interpretations of its items, and to different response-style variables.

D. CONCLUSIONS

This effort to compare African attitudes of tribe members and of resident Europeans was subject to several methodological difficulties. While the instrument employed provided data to indicate that, with few exceptions, the Africans were more favorably disposed toward fellow Africans than were Europeans, a careful analysis of response protocols revealed the operation of certain nonattitudinal variables. Consequently, the substantive hypothesis which prompted this study could not be put to adequate test.

However, with respect to that hypothesis, which concerned the possibility of "identification with the aggressor," the findings do suggest: (a) that few Africans take on the anti-African attitudes of the Europeans; and (b) that those who appear to do so are probably only acquiescing with anti-African statements presented to them by a European. This in turn suggests the revised hypothesis that the process of acculturation, in a setting like that in which this study was conducted, includes for some persons a period of super-

ficial acceptance of the manifest beliefs of a dominant outgroup, with no serious concern for the content of those beliefs, and however inconsistent they may be with deeply held beliefs. The reasons for this acquiescence with negative, incompatible, group stereotypes may be many, but they probably do not include assimilation of the negative attitude underlying the manifest opinions. In only three cases in this sample of 68 adult Africans did persons earn an anti-African attitude score without simultaneously endorsing nearly all the pro-African items on the questionnaire. Given the data available here, then, superficial acquiescence seems a more plausible hypothesis than a profound identification process.

A less substantive conclusion based on this study is a reaffirmation of the methodological necessity of a careful analysis of response styles and of relationships among terms in an attitude questionnaire, particularly when the questionnaire is employed with markedly different groups, as in cross-cultural research. Without the results of those analyses to be used as an interpretive context, the distributions of attitude scores obtained in this study could have been seriously misleading. In view of this, it might be well to reexamine existing research on assimilation and acculturation with a view toward disentangling a relatively superficial acquiescence from a purportedly more profound identification.

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BEHAVIOR IN A GROUP RELATED TO TESTED SOCIAL ACQUIESCENCE*¹

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A. INTRODUCTION

The social Acquiescence scale (SA) measures the generalized tendency to accept a wide variety of generalizations about social behavior (1). The 56-item scale, developed by internal consistency item analysis, has a reliability above .90 and correlated .95 with the tendency to accept or reject 300 proverbs, aphorisms and similar generalizations. Earlier exploratory studies with a variety of samples suggested that one who earns a high Social Acquiescence score tends to be an uncritical conformer, a "yes-man" to social demands. He is slightly less intelligent and educated, yet is sociable and tends to think well of people (2). A summary of more recent studies suggested that SA may also relate (negatively) to problem-solving success, classroom achievement and self-satisfaction.

B. PURPOSE

The purpose of the present study was to see if acquiescent tendencies as revealed by the SA scale show up when the same *Ss* participate in group discussions. Specifically, this analysis tested the hypothesis that the higher one's SA score the more likely as a discussant he would be to change his opinion, to increase in agreement with others, and to accept group decisions.

C. SUBJECTS AND METHOD

After taking the Famous Sayings Test (2) in which the Social Acquiescence scale is embedded, 40 undergraduate psychology volunteers were tested in groups of five using a social analog computer (4).

Each group discussed four human-relations problems with alternatives provided in advance of discussion for each problem by the experimenter.

Prior to each discussion, each *S* ranked in his own panel of the analog computer the five alternatives provided by *E* in order of their judged worth

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as solutions (X). Then, following 10 minutes of discussion, the five Ss in the group reported a group decision (G) to E, after which each S again registered his opinion about the worth of the five alternatives (Y). The rank difference (rho) correlations between the X, Y and G rankings within and between Ss provided objective measures of how much each S shifted his opinions, accepted the group decision and the opinions of the other members. Specifically, measures obtained from the computer were:

$\bar{\rho}_{X_i X}$ = average correlation initially between a given *S* and all the others in his group; how much *S* agreed with others before the discussion (Symbolized, XX).

ρ_{GX_i} = correlation between a given *S*'s initial ranking and the group decision ranking the five alternatives; how much the group discussion matched *S*'s initial opinion (GX).

ρ_{GY_i} = correlation between a given *S*'s final ranking and the group decision; how much *S* accepted the group decision (GY).

$\rho_{X_i Y_i}$ = correlation between a given *S*'s initial and final rankings; how much *S* did *not* shift his opinion from before to after discussion (XY).

$\bar{\rho}_{Y_i Y}$ = average correlation finally between a given *S* and all the others in his group; how much *S* agreed with the others after the discussion (YY).

Each *S*'s average performance in all four problems was calculated for each of the objective measures of agreement and stability. Also how much he attempted leadership (T) or participated in the discussion, was measured by clocking by means of throat microphones the amount of time in minutes he talked in each discussion.

D. RESULTS

Table 1 shows the matrix of intercorrelations between the Social Acquiescence scale and the six objective measures of actual performance in the group discussions.

The socially acquiescent member, as assessed by his tendency to accept rather than reject generalizations regardless of content, tended (significantly at the 1 or 5 per cent level) to accept more readily the group decision ($r = .36$) and to agree more with the other members after learning their opinions in the discussion ($r = .39$). (Accepting the group decision and agreeing with others finally were highly related.) The conformity could not be accounted for by initial agreement, influence, or attempted influence of the other members, since these measures were negatively (but not significantly) related with Social Acquiescence ($-.07$, $-.22$, $-.16$).

TABLE 1
PRODUCT-MOMENT CORRELATIONS BETWEEN THE SOCIAL ACQUIESCE SCALE AND SIX OBJECTIVE MEASURES OF BEHAVIOR
IN GROUPS

	Initial Agreement with Others	Attempted Leadership	Agreement of Group and Member Initially	Acceptance of Group Decision	Stability	Final Agreement with Others	Social Acquiesce Scale
(1) Attempted leadership (T)	.07	.20	.07	-.16	.12	-.16	
(2) Initial agreement with others (XX)		.78**	.14	-.26	.01	-.07	
(3) Agreement of group and member initially (GX)			.07	-.44**	-.02	-.22	
(4) Acceptance of group decision (GY)				.08	.89**	.36*	
(5) Stability (XY)					.19	.62	
(6) Final agreement with others (YY)						.39**	
Mean (per discussion)	1.84	.18	.44	.75	.63	.55	31.80
SD	.88	.16	.24	.21	.21	.23	7.24

* $p < .05$ when $r = .31$ for 38 df .
** $p < .01$ when $r = .39$ for 38 df .

Those initially in agreement with others showed less change of opinion ($r = .26$) and were more close initially to the group decision which was finally reached ($r = .78$). But these particular effects were independent of Social Acquiescence.

E. SUMMARY AND CONCLUSIONS

Scores were obtained for 40 Ss from the Social Acquiescence Scale of Famous Sayings. Ss then participated in group discussions about solutions to four problems in human relations. Correlations among their rankings before and after discussions of the worth of various solutions provided objective measures of how much each *S* tended to agree with others, shift his opinion and accept the group's decision.

The hypothesis was supported significantly that the high scorer on the Social Acquiescence scale, when placed in the problem-solving situation, would be most prone among the members to accept whatever group decision was reached and to increase in agreement with others as he learned their opinions during discussion with other members.

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RACIAL ATTITUDES AND THE ACTION OF NEGRO- AND WHITE-BACKGROUND FIGURES AS FACTORS IN PETITION-SIGNING*

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A. STATEMENT OF THE PROBLEM

Helson's (2) theory of adaptation-level has been demonstrated to be a useful framework for understanding the role of social pressures upon behavior. According to this theory, *S*'s behavior in a particular situation is determined by the relative weights assigned by him to the stimulus immediately confronting him, the background stimuli, and residuals from past experience. Included in the third category are beliefs, attitudes, traits, and cultural determinants. In a recent study employing the adaptation-level paradigm, Helson, Blake, and Mouton (3) studied petition-signing as an adjustment to situational and personal factors. In this experiment, a confederate responded to the petition-bearer according to prearranged instructions. After the confederate had either signed or refused to sign the petition in full view of *S*, *S* was then requested to sign the petition. In this instance, the confederate's behavior would form the background, while the petition is the immediate stimulus. Another aspect of this study was concerned with personal factors (residuals), namely, *S*'s tendency toward submission. The conclusion of this study was that petition-signing represents not so much the inner convictions of the individual as it does the situational factors brought to bear upon the individual.

In the study by Helson, Blake and Mouton, two petitions were employed. These were termed "positive" or "negative" petitions because of the degrees to which they attracted signatures in the absence of background factors. The positive petition, which had elicited 96 per cent signing, elicited only 30 per cent when the confederate refused to sign. The negative petition, which had elicited only 15 per cent signing, was signed by 33 per cent when

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the confederate signed. From this study, it is quite apparent that the relative strength or weakness of a petition can be manipulated by the confederate's behavior toward the petition.

The purpose of the present study is to explore a particular attribute of the confederate as a factor in influencing *S*'s behavior in a petition-signing situation. The study by Lefkowitz, Blake, and Mouton (4) suggests that the status of the background figure may influence whether or not *Ss* perform the same act as this figure. The attribute selected for examination was the race or color of the confederate, with attitudes toward Negroes serving as the residual factor. It was hypothesized that, among college students with a white southern background, attitudes toward a Negro confederate would be reflected in *S*'s reaction to a petition after the confederate had either signed or refused to sign the petition. The specific hypothesis to be tested is that, for white *Ss* with high scores on a scale measuring prejudice toward Negroes, the behavior (signing or not signing) would tend to be the reverse of that of the Negro confederate and the same as that of the white confederate.

B. THE EXPERIMENT

1. Subjects

The *Ss* for this experiment were drawn from elementary classes in psychology, sociology, and government. To avoid problems in sex differences, the *Ss* were all males. All were white and native Arkansans.

2. Procedure

The first phase of the study consisted of collecting information about attitudes toward Negroes from the *Ss*. This phase was conducted in the classroom, and consisted of the administration of a nine-item attitude scale adapted from the *Authoritarian Personality* (1). A previous study with this scale revealed that samples of college students from Northern states score lower (i.e., are less prejudiced toward Negroes) than do Southern students, thus indicating construct validity for the attitude scale.² The scales were administered to the entire class, both male and female, and *Ss* were led to believe that the test administration constituted a complete study. The *Ss* for the later phases of this study were then dichotomized into high- and low-prejudice groups, on the basis of the relationship of the *S*'s score to the median of the sample.

At a later date, a person other than the administrator of the attitude scale

² G. Maranell, Personal Communication, 1960.

approached the students in class and requested volunteers for an experiment. Since participation in psychological experiments is required of all students in general psychology, these *Ss* are not "free volunteers." Appointments were then made for the male *Ss* and these *Ss* were instructed to report individually to a specified room in the Psychology Building at the scheduled hour.

When the *S* arrived for his appointment, he found another student (actually an experimental assistant) already seated in the room. As soon as *S* was seated, *E* entered and explained that the previous *S* had not yet finished, and then departed. On a signal, another assistant, with a petition, entered from another door, explained the purpose of the petition and requested the assistant to sign. The assistant signed or refused according to a prearranged sequence. The petition-bearer then requested the *S* to sign the petition, and recorded his response. This phase of the study is similar in most respects to the procedure employed by Helson, Blake, and Mouton (3). The *S* was then requested by *E* to accompany him to the experimental room, where he was given a Semantic Differential form to complete. Since the purpose of the task was to make the actual experimental condition seem realistic, the Semantic Differential was discarded after *S* left the room.

Within the framework of the above procedure, half of the *Ss* encountered a Negro waiting his turn in the waiting room, while half shared the waiting room with a white assistant. Approximately 100 *Ss* took part in this experiment. The background conditions can be summarized as follows:

W-Pos: White confederate signs the petition.

W-Neg: White confederate refuses to sign the petition.

N-Pos: Negro confederate signs the petition.

N-Neg: Negro confederate refuses to sign the petition.

The petition employed in this study contained a proposal to extend the library hours on Saturday evening until eight o'clock. This was chosen because it represented an issue on which there should not be strong approval or disapproval. To determine a neutral point for the petition, students were requested to sign the petition without reference to a background of the assistant's behavior. The "neutral" *Ss* were chosen at random on the campus and presented with the petition. Under this condition, 74 per cent signed the petition.

C. RESULTS

The specific hypotheses to be tested are that low-prejudice individuals would tend to react to the petition in the same manner as the Negro assistant, while high-prejudice individuals would tend to do the reverse. The results

of this analysis are summarized in Table 1. In general, the results indicate that both low- and high-prejudice *Ss* tend to be strongly influenced by the behavior of the confederate and to about the same extent. When the confederate, white or Negro signs the petition, it is highly unlikely that *S* will refuse.

TABLE 1

RESPONSES OF LOW- AND HIGH-PREJUDICE GROUPS TO NEGRO AND WHITE BACKGROUNDS

Group	W-Pos	Background		Condition		WN-Pos	WN-Neg
		W-Neg	N-Pos	N-Neg			
Low prejudice							
Sign	12	3	12	10	24	13	
Refuse	0	8	0	4	0	.001	12
<i>p*</i>		.001		.134			
High prejudice							
Sign	10	6	11	7	21	.13	
Refuse	6	9	1	6	2	.002	15
<i>p*</i>		.021		.093			
Combined							
Sign	22	9	23	17	45	26	
Refuse	1	17	1	10	2	.001	27
χ^2	17.02			6.29		24.12	
<i>p*</i>				.02			

* Fisher's exact method.

It is less clear as to what is taking place when the confederate refuses to sign the petition. In this instance, it appears that low-prejudice *Ss* tend to sign after seeing the Negro refuse, and to refuse to sign when the white confederate refuses. The high-prejudice *Ss*, on the other hand, seem to divide equally between signing and refusing to sign. In this situation, it appears that results are contrary to the hypothetical expectations.

When the results obtained by using a confederate are compared with those obtained under the neutral condition (see Table 2), it is apparent that the effects of the combined confederates upon the *Ss*' behavior is quite strong. According to this table, 96 per cent of all *Ss* signed when the assistant

TABLE 2
ACTION OF SUBJECTS UNDER DIFFERENT BACKGROUND CONDITIONS

Action of <i>S</i>	Background Condition			Neutral <i>N</i>	Neutral %
	Positive <i>N</i>	Positive %	Negative <i>N</i>		
Sign	45	96	26	49	74
Refuse	2	4	27	51	26

Positive-Neutral $\chi^2 = 7.18$, $p = .01$.

Negative-Neutral $\chi^2 = 6.19$, $p = .02$.

Positive-Negative $\chi^2 = 24.12$, $p = .001$.

signed and 49 per cent signed when the confederate refused. These percentages, when compared with the 74 per cent who signed in the absence of a background, lend support to the statement of Helson, Blake, and Mouton (3) that situational variables may be more important in the decision to sign or not to sign a petition than the nature of the petition itself.

D. DISCUSSION

The purpose of the present paper is to explore further some of the implications of the work of Blake and his co-workers in the area of situational and personal factors in conforming behavior. It was assumed that the situational factor of having a Negro or white confederate perform a certain act would influence *Ss* in accordance with their prejudices. The influence of race of the confederate upon individuals of low and high prejudice was not manifested in this experiment. The results do lend strong support to the position of Helson, Blake, and Mouton (3) that, under certain conditions, situational factors may outweigh personal factors in making decisions about petition signing. In the present study, 22 per cent more *Ss* signed the petition when the background was positive than when it was neutral, and 25 per cent fewer signed when it was negative. These results are in agreement with those obtained by Helson *et al.*

The failure of personal factors (level of prejudice) to operate as expected may be a function of the lack of "saliency" of the situation to these factors. In other words, the total situation was nonspecific to the attitudes under consideration. A petition aimed at integrating student housing might be expected to arouse attitudes of prejudice and permit the personal factor to influence the response. Under this condition, personal factors might be expected to outweigh the situational factors. The situation of a Negro petition-bearer and a Negro signing the petition might also be expected to have differential effects upon individuals of high and low prejudice levels.

E. SUMMARY

This paper reports a laboratory study in which *Ss* observed another student either sign or refuse to sign a petition before being requested to sign the petition themselves. For half of the *Ss*, the other student (an assistant) was Negro, and for the other half, this individual was white. Both assistants signed or refused to sign the petition according to a prearranged sequence. Attitudes toward Negroes did not appear to play a strong role in this situation. In general, the results indicate that situational factors outweighed

personal factors in determining *S*'s reaction to the petition employed in this study.

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DIMENSIONS OF DELINQUENT BEHAVIOR^{* 1, 2}

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A. INTRODUCTION

Research studies have generally considered all delinquent acts as belonging to a single general class. Recently, however, at least two studies have indicated that there may be different kinds of delinquency.

Nye and Short (3) have found a number of delinquent acts which were unidimensional according to the criteria of a Guttman type scale. These investigators isolated a seven-item unidimensional scale from a longer delinquency checklist which had been administered to large samples of high school boys. The offenses comprising the scale were: 1) driving without a license, 2) taking little things, 3) buying or drinking alcoholic beverages, 4) skipping school, 5) having sex relations with the opposite sex, 6) destroying property, and 7) defying parental authority. While these items have demonstrated statistical unity, an examination of item content fails to reveal what might be called psychological unity; the items seem quite divergent when considered from the point of view of possible psychological meaning or underlying motivation.

In a somewhat similar study Scott (6) administered a number of items regarding delinquent acts to a group of college students. Using scalogram analysis he was able to identify two dimensions for the items comprising his original scale. The first was composed of six items relating to thefts of various kinds, one item in regard to the possession of stolen goods, and one item having to do with evading payment in busses, movies, etc. Conceptually, all of these items had to do with offenses of an impersonal nature; all were directed against corporate entities or unknown individuals. Scott's second dimension was composed of four items: 1) failure to return stolen goods when the owner was known, 2) stealing from friends or acquaintances,

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¹ This study was facilitated by a grant to the junior author from the National Science Foundation undergraduate research participation program.

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3) stealing from parents, and 4) shortchanging parents or others. Scott noted that this dimension has the psychological unity that the person affected by the delinquent act is in the interpersonal realm of the actor. As Scott cogently points out, the motivation for offenses comprising the two dimensions may be quite different. He hypothesizes that the antecedents of impersonal delinquency may be the assimilation of delinquent mores while the antecedents of interpersonal delinquency may be abnormal socialization in a pathological family environment.

These studies seem to suggest the following conclusions: (*a*) there may be different dimensions of delinquency; (*b*) these dimensions may well be related to different social and psychological antecedents; and (*c*) dimensionality of delinquency is extremely important in terms of its implication for research into the etiology of what has heretofore been considered to be a unitary phenomenon.

The purpose of this study was to explore further the dimensionality of delinquent behavior using institutionalized delinquents as *Ss* and using factor analysis as a method of deriving the dimensions.

B. METHOD

1. *Subjects*

Ss were 191 white male juvenile delinquents who had had repeated court contact and at least one commitment to a correctional institution. This selection procedure attempted to maximize both the opportunity of *Ss* to be guilty of a wide variety of delinquencies and the probability that official juvenile court records would reflect as much of this activity as possible.

2. *Procedure*

A checklist of delinquent acts was prepared on the basis of studies of the incidence of juvenile offenses. This checklist contained more than 50 delinquent acts, but the elimination of 37 of these was necessary as will be noted below.

Case records gathered and maintained by juvenile-court personnel were then studied in order to determine which of the offenses each *S* had apparently committed. These determinations were made by the junior author.

After the original checklist had been completed for each *S* it was found that many offenses had occurred too infrequently to be included in the statistical analysis; only those 13 delinquent acts which were judged to have been committed by at least 10 per cent of the *Ss* were retained for analysis.

To determine rater reliability for the judgment of the presence or absence of the offenses retained for analysis, a sample of 34 records was reanalyzed after a lapse of approximately five weeks. As a measure of reliability, phi coefficients were calculated for each offense separately. These coefficients ranged from 1.00 (assault) to .38 (property theft), with a median of .88. Only three fell below a value of .80 while seven were above .85. It should be noted that the upper limit of the phi coefficient is frequently less than 1.00 when marginal totals are unequal; thus coefficients obtained here generally tend to be underestimated. A further analysis indicated that unreliability was present in less than 10 per cent of all judgments made. While the reliability of the ratings made from the records is quite satisfactory, no claim whatsoever can be made about the reliability of the "raw" data contained in these records, except that these data were collected by probation workers with considerable experience.

The next procedure involved the intercorrelation of the 13 delinquent acts by use of phi coefficients. The resulting matrix was subjected to a centroid factor analysis. Five factors were extracted after which the residual matrix contained no element larger than .10. These factors were then rotated by the quartimax routine of Neuhaus and Wrigley (2), a procedure which results in orthogonal factors and provides a mathematical approximation to simple structure.

C. RESULTS^e

The rotated factors may be found in Table 1. Factor I can be seen to load primarily on truancy with theft of property negatively loaded and no other variable with a loading greater than .14. This factor seems to represent truant behavior which is not systematically accompanied by any other delinquency and is inversely related to theft.

Factor II has its largest loadings on driving without a license, reckless driving and liquor violations, with smaller loadings on auto theft and larceny. This factor seems most representative of delinquencies pertaining to the use of automobiles in an irresponsible manner and may well reflect an impulsivity and a thrill-seeking reaction.

Factor III is loaded primarily on assault, disorderly conduct and liquor violations. This factor seems to be a clear representation of hostility and aggression directed toward others which may be most apt to be manifest under the influence of alcohol.

Factor IV has loadings of greater than .20 only on runaway and vandalism. This suggests a dimension of escape coupled with aggression against the impersonal environment.

TABLE 1
ROTATED FACTOR MATRIX

	I	II	III	IV	V	h^2
Assault	.06	.18	.40	-.10	.16	.23
Larceny	-.05	-.25	.16	.12	.02	.11
Disorderly	-.08	.06	.42	.10	-.05	.20
Vandalism	-.02	.04	.13	.28	-.05	.10
Runaway	.06	.11	-.05	.26	.29	.17
Truancy	.62	.07	.10	.08	-.05	.41
Possessing stolen goods	.10	.12	-.09	-.03	-.29	.12
Liquor violations	.08	-.38	.36	-.04	-.11	.29
Auto theft	.00	-.20	.02	.44	.04	.24
Bicycle theft	.14	.12	-.10	.04	.26	.11
Property theft	-.45	.04	.18	.15	-.16	.28
Driving without license	-.07	-.74	.00	.02	-.03	.55
Reckless driving	.05	-.64	-.09	.02	.00	.42

Factor V has its largest positive loadings on runaway and bicycle theft and a negative loading on the possession of stolen goods. This factor is quite probably associated with age; the younger delinquent would probably be most apt to commit these two offenses and least apt to be guilty of possession of stolen goods.

As can be observed in Table 1, the communalities for most of the variables are quite low. This, of course, indicates that much of the variance of this group of delinquencies cannot be accounted for by the group factors extracted in this analysis.

D. DISCUSSION

The results of this exploratory research suggest the presence of five independent dimensions of delinquent acts all of which seem fairly easily interpretable. There appear to be certain similarities between the factors isolated here and the dimensions found previously. Factor III, representing aggression and hostility may well be a manifestation of similar motivations as may underlie Scott's (6) interpersonal delinquency dimension. Further, Scott's impersonal dimension may be reflected in both Factors II (impulsive thrill-seeking) and IV (impersonal aggression).

Of interest is the fact that no clear "delinquency for profit" factor emerged. The variance of larceny, property theft, and possessing stolen goods was distributed rather randomly across all factors and the communalities for these variables were particularly low. The absence of this factor, which one might associate with participation in a delinquent or criminal subculture, may reflect the lack of such participation by the majority of our Ss.

It is intriguing to speculate about the relationships of the dimensions of delinquent behaviors found here and the dimensions of delinquent personality which have been identified in previous researches. Factor II (impulsive thrill-seeking) and Factor III (interpersonal aggression) might well be related to Hewitt and Jenkins' (1) Unsocialized Aggressive; Reiss' (5) Weak Ego; and Peterson, Quay, and Cameron's (4) Psychopathic Dimensions. Factor IV (escape and impersonal aggression) might well be related to the dimension of neurotic delinquency identified by Peterson, Quay, and Cameron (4). It is for further research to establish relationships between the dimensions of delinquent behavior on the one hand and the dimensions of personality and social background on the other. The use of this type of approach does appear to offer much more promise than the more traditional study of delinquency as a unitary phenomenon.

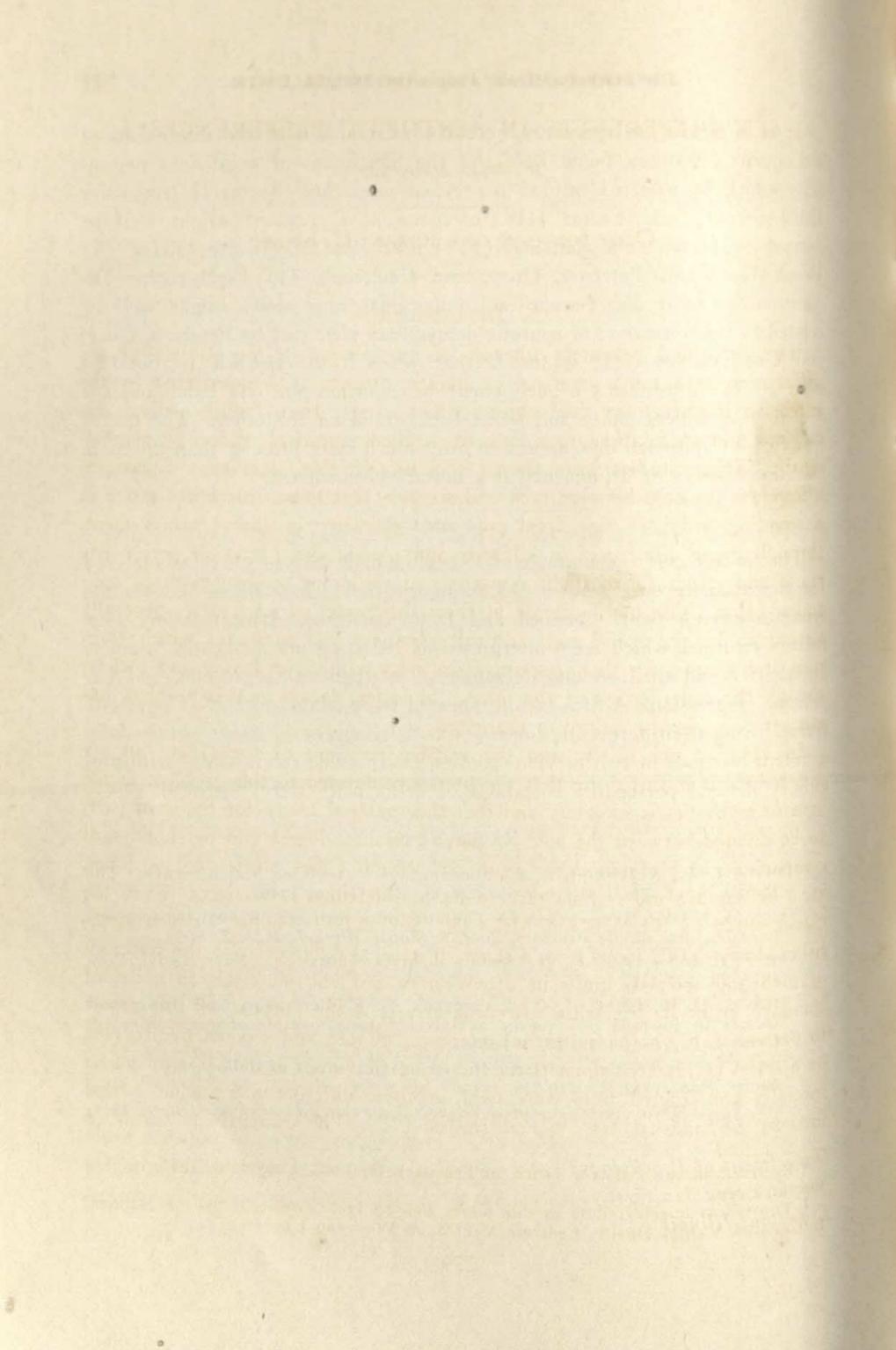
E. SUMMARY

The court records of a sample of 191 white male delinquents were analyzed for the presence or absence of 13 delinquent acts. Correlations between the separate offenses were obtained and factor analyzed. After rotation, four factors emerged which were interpreted as reflecting uncomplicated truancy, impulsivity and thrill-seeking delinquency, interpersonal aggression, and impersonal aggression. A fifth factor appeared to be related to age. The results were discussed in terms of dimensions of delinquent behavior obtained by different methods in two previous studies, and possible relationships with previously defined personality correlates of delinquency were suggested.

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SEX DIFFERENCES IN AESTHETIC PREFERENCES^{*}¹

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A. INTRODUCTION

The deep and persistent interest of our society in the subject of sex differences in a range of areas of human concern is demonstrated by the extensive literature on this subject, which ranges from highly general discussions and speculations to a mass of detailed, empirical studies by psychologists. These studies have shown conclusively that significant behavioral differences do exist between men and women, that these differences range in descending order of size from enormous disparity in career achievement, through great differences in interests and modest differences in personality traits and structure, to slight disparities in the range of demonstrated aptitudes (16). The major factor in these differences is, of course, generally agreed to be the social and cultural incentives and pressures which train men and women for their respective sex roles within the family and society, though the contribution of the innate, biological factor in this problem has not yet been clearly defined or evaluated.

In view of the clarity and the relative precision of these data on sex differences, it is surprising that the literature devoted to this problem in the area of aesthetics is so scanty and that this material tends, for the most part, to be divided between the poles of paleo-Freudian dogma and psychophysical comparisons of preferences of "aesthetic" stimuli (lines, shapes, colors, tones, etc.) which are too rudimentary to be considered as art objects. Even the classic study by Terman and Miles on "Sex and Personality," which establishes almost 1,000 items from a range of areas as differentiating the responses of men and women, limits its attention to aesthetic materials to a list of standard titles in literature. Accordingly, it is the purpose of this report to present data on the aesthetic preferences of men and women as provided by a series of research projects conducted by the junior author in which four specially constructed tests were used in three different art media: verbal imagery (8), visual art (9), and music (10). The comparisons furnished

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here, in conjunction with those available in the limited number of reports previously published, seem adequate to serve as an exploratory map of the general range of sex differences in some basic art preferences and to provide the basis for some tentative generalizations about the nature, the size and the significance of these differences. Assembling these descriptive data is primarily valuable, of course, as a step toward a more direct study of the nature of the aesthetic response, a study which would then be able to utilize the information already gathered about the differences between the sexes in social roles, interests, attitudes, beliefs, temperament, and personality.

B. PROCEDURE

The research projects which provide the descriptive data of this report were designed to study the correlations between the subjects' preferences for art objects and art styles and the personality traits of these subjects. In addition, these projects have had the goal of revealing stylistic congruence among different types of art by demonstrating that different styles in different media have an inner consistency because subjects respond to them, as a group of art objects, in a similar way. An encouraging start has been made toward both these goals, but it will only be possible in this paper to make references in passing to the published reports of this work.

Preferences for styles within three basic modes of art have been obtained by means of specially constructed tests, which provide for ratings of preference or dislike for a range of representative art objects within the given fields of art. Statistical analysis has previously assured that these art objects are broadly representative and that responses to them are meaningful. The groups of subjects ranged in size from 60 to 223, with the sexes generally represented in equal numbers. These subjects tended to be from the younger age groups of the population and to be drawn from middle-class backgrounds. Most of these test groups were composed of students, partly for convenience of test administration but, more significantly, because personality test measures were usually available to permit the correlational studies described above. But the institutions from which these student groups were drawn varied considerably: a small city high school, a Fine Arts Department of a city university, two state universities, and a small "liberal arts" college. Two other groups were drawn from student nurses and from schoolteachers.

C. RESULTS

1. *Verbal Imagery*

The test of verbal imagery is an attempt to measure preferences for poetic materials by obtaining from subjects preference ratings for 150 metaphors,

chosen for the qualities of vividness, sensuousness, and relevance to basic issues and problems of human existence. Faced by the impracticability of presenting subjects with the full text of a number of poems, the author selected the metaphor as the basis for this test because it seemed the linguistic symbol basic to poetic art in the English language and because it often is the key to the total structure and meaning of a poem. Further, the requirement that these metaphors be relevant to a set of basic life orientations (conscience, death, time, self-image, success, and love) encourages preferences similar to those expressed toward works of literature, which inevitably exemplify cultural norms and values, though implicitly, rather than overtly. An expression of preference for any one of these 150 metaphors is, therefore, a complex response, for it is jointly determined by aesthetic sensitivity, by personal temperament, and by basic life orientations. But these are the vital aspects of response to literature, itself.

Now to the 33,450 preferences for metaphors expressed by 136 undergraduate women and 87 undergraduate men enrolled at the University of California at Berkeley. Do these responses reveal any significant overall difference between the sexes in their preferences for metaphors? They do, for 23 of these 150 metaphors are differentially preferred by men or women to a degree that each such difference between sexes in the case of one metaphor would occur by chance but once in 20 times (probability is .05, or $P = .05$) if this metaphor were being tested separately from the accompanying 149. When 23 differences of this size are found in a total group of 150 comparisons, the probability is but four chances in 1000 that such differences could occur by chance (13).

So men and women do differ significantly in their responses to metaphors (and perhaps to poetry, and perhaps to literature in general), but this overall result also represents varying degrees of difference between the sexes in their responses to the six Metaphor Tests, ranging from a P of .0002 in Self-Image (7 of 25 metaphors differentiating) to .72 in Death (1 of 25 metaphors differentiating), a result ($P = .72$) to be expected by chance almost three times in every four. One may speculate whether the number of differentiating metaphors in these six scales varies according to the nature of these basic foci of existence. Death, time, and conscience may well be the ultimate parameters which bound human beings, rather than the sexes; sex roles may become increasingly significant in attitudes toward success, love, and the self.

The following table lists the 23 significantly differentiating metaphors under their respective scales in order of descending size, with an (M) or (W) placed before the metaphors preferred by men or women. It is tempting

TABLE 1
METAPHORS DIFFERENTIALLY PREFERRED BY SEXES

Sex metaphor	Means		Sex metaphor	Means	
	M	F		M	F
<i>Self-image</i> ($P = .0002$)			<i>Success</i> ($P = .03$)		
(M) a sheathed sword	4.59	3.65	(F) a rainbow	4.51	5.33
(M) a stone wall	3.83	3.10	(M) a seductive woman	3.56	2.75
(F) a humming teakettle	3.89	4.52	(M) a lonely eminence	4.32	3.78
(F) a wave in the ocean	4.76	5.23	(F) a ladder to the sky	4.91	5.44
(F) a splashing fountain	4.49	4.94	<i>Time</i> ($P = .13$)		$r = .95$
(M) an electric generator	4.46	4.02	(M) a massive glacier	4.09	3.63
(M) a grinding millstone	4.13	3.73	(F) marching feet	3.90	4.29
<i>Love</i> ($P = .001$)			(M) a devouring monster	2.53	2.15
(M) a tongue of flame	4.17	3.61	<i>Conscience</i> ($P = .36$)		$r = .95$
(M) a tiger in a cage	3.70	3.21	(M) a tedious sermon	4.00	3.60
(F) bubbles in champagne	4.51	4.98	(M) a vicious bully	2.70	2.34
(F) cupped hand holding jewels	4.13	4.57	<i>Death</i> ($P = .72$)		$r = .96$
(F) a self-replenishing fountain	5.17	5.54	(F) silent birds	4.53	4.99
(M) an upraised spear	3.23	2.90			

to seek the master dimensions underlying the 13 metaphors preferred by the men and the 10 metaphors preferred by the women, respectively.

Does "Yang," the masculine principle of Chinese metaphysics, express itself here in the power and the aggressiveness of the metaphors preferred by men?

Does "Yin," the female principle of the universe, express itself in images of water, of self-enhancement and of the bounded and the contained?

It will be noted in Table 1 that means are listed opposite each metaphor, indicating the average score of the group, with 4.0 the average of all the means. A comparison of the means for the two groups, metaphor by metaphor, shows that the difference between corresponding means, even when statistically significant, is not large. Thus, a comparison of two groups which are large in size may indicate that a given difference is significant though this same difference might not prove to be significant if found between groups of smaller size, since the latter would be less reliable in predicting that the difference between them would occur again in other samples of this size. A further measure of the small absolute differences between the sexes in the metaphor tests is supplied by the symbol r , opposite the title of each metaphor scale, which indicates the degree to which the means of the men correlate with the means of the women. Since +1.0 represents a perfect correlation (exact equivalence of means for all 25 metaphors, in this case), the range of correlations for these six scales is extremely high, ranging from .92 to .96.

To test further the validity of the 23 metaphors toward which men and

women students of the University of California responded differently in preference, these same metaphors were compared for two other groups, men and women who were older (from 22 to 40), who were public schoolteachers by profession, and who were for the most part residents of New England. Great consistency in sex differences was demonstrated since 21 of the 23 metaphors were preferred by the same sex as in the California study, though the degree of difference between the sexes in this preference was, of course, reduced. The persistence of the same type of preference by sex in 21 out of 23 cases indicates a great probability that these results are not due to chance; this probability is less than one chance in a thousand. It is interesting, though perhaps poignant, to observe that the two metaphors toward which the men and women schoolteachers reversed the order of preference of the California undergraduates were both in the Success scale. In the first reversal of preference, women schoolteachers, unlike college women, found success to be "a lonely eminence." In the other reversal, men schoolteachers, unlike undergraduate men, considered success to be "a rainbow."

These six metaphor tests are made more meaningful and more effective as scales of aesthetic preference by intercorrelating the 25 metaphors of each test and using the major groupings of items within each test as separate scales, since the items within each such group have a similar meaning to

TABLE 2.
MEAN SCORES OF GROUPS FOR METAPHOR TESTS

Metaphor	Scale	Art students Men	Art students Women	Teachers Men	Teachers Women	Wesleyan Men
Time	speeding vs. oceanic	15.0	16.5	17.3	19.9	15.8
Death	compassionate vs. sadistic	22.3	20.8	28.3	27.1	21.7
Conscience	supportive vs. coercive	22.3	22.0	28.5	28.4	24.9
Self-image	pure-dynamic vs. decayed-trapped	23.1	24.6	28.0	27.5	24.8
Success	radiant-proud vs. forlorn-sick	25.0	25.2	25.3	26.1	28.1
Love	sweet-joyful vs. bitter-painful	20.1	19.3	20.4	21.5	22.8

subjects. The first and most important grouping of metaphors within each of the six tests as derived by this factor-analytic method, is shown as headings in Table 2. For each of these scales the mean scores are presented for two pairs of groups of men and women from similar backgrounds: 50 men and 50 women from the Art Department of the University of Hartford and the

32 men and 28 women schoolteachers referred to above. The means are also shown for a Wesleyan University group of 60 men in order to provide another basis for comparison. The title of each metaphor scale is accompanied by descriptive adjectives which characterize the bipolar nature of the scale being examined. Thus, for Death, a higher score indicates that a test group prefers metaphors of a compassionate rather than a sadistic nature.

A statistical comparison of these mean scores of the five groups under examination reveals several basic patterns of relationship. First, there is no significant difference statistically between the men and the women in the case of both art students and schoolteachers. But by grouping men and women art students together and similarly classing men and women schoolteachers together, since these two vocational groups do not differ within themselves on the basis of sex, marked differences are found among the three groups then established. Thus, Table 2 indicates that schoolteachers, compared both to art students and Wesleyan undergraduates, regard conscience as more benign and supportive, have a happier image of the basic self, and view death as compassionate, rather than cruel. The meaning of this intercorrelation of attitudes toward conscience, the self, and death is clear, for these attitudes are obviously interdependent (17). The public image of the schoolteacher as responsible and conscientious is corroborated by these findings, which also suggest that virtue in this case has special rewards. The Wesleyan group occupies an intermediate position between the schoolteachers and the art students in these three scales, but only in the conscience scale does the Wesleyan group exceed the artist group at a level approaching significance. In turn, the Wesleyan group appears the most buoyant and optimistic in its view of the future. Its image of love is more joyous than that of the artists and the schoolteachers, and, similarly, its vision of success is brighter.

Table 3 lists the levels of statistical significance of these differences between groups. It is obvious that most of these differences are very marked from a statistical point of view.

A comment should be made at this point about the lower standing of the art students on these scales relative to the other two comparison groups. This evidence of inner conflict and troubled relations with the outer world accords with the results of other studies of the modal personality of art students, made through group tests (11, 15). A firm caveat must be entered against over-ready generalizations from the present study and the other two cited. These groups of art students which have been studied may not be representative of art students in general, but may be drawn from special sociocultural groups. If so, these reported differences may be due to characteristics of the social

TABLE 3
LEVEL OF STATISTICAL SIGNIFICANCE OF DIFFERENCES BETWEEN GROUP MEANS OF TABLE 2

Metaphor	Schoolteachers <i>vs.</i> art students	Schoolteachers <i>vs.</i> Wesleyan men	Wesleyan men <i>vs.</i> art students
Conscience	.0001	.035	.07
Self-image	.0002	.016	
Death	.0001	.0001	
Success			.045
Love			.005
Time		(No significant differences among groups)	

subgroups, not of the vocations elected by some of their members. In addition, standardized group tests tend to follow an unfortunate historical precedent of measuring personality in terms of pathology and are as yet unable to measure adequately the talents, the visions, and the creative skills which certainly are more characteristic of artists than measures of their malaise and discontent.

Finally, to summarize these data on preferences for poetic metaphors: (a) Men and women do differ significantly in these preferences, but these differences, though statistically meaningful, are not great. (b) The differences between men's and women's preferences vary greatly according to the nature of the subject field from which metaphors are chosen. (c) These differences between the sexes are much smaller than the differences to be found in the same tests among groups varying by social class and chosen vocation. (d) A qualitative study of the metaphors differentially preferred by men and women reveals that men prefer images of power and aggressiveness and that women prefer the symbols of self-enhancement, of water and of the bounded and the contained.

2. *The Visual Arts*

The differences between men and women in preferences for visual art will be reported in terms of the results obtained from two tests developed in this field. The first is the Abstract Art Test, constructed in collaboration with Samuel Green, Director of the Davison Art Center at Wesleyan University (10). It consists of 25 paintings of acknowledged distinction, chosen as broadly representative of modern abstract art, which are presented to subjects by Kodachrome slides for ratings of relative preference *within* this group of paintings. Accordingly, subjects are asked to distribute their ratings evenly over a seven-point rating scale, so that their judgments express their preferences for paintings and styles *within* abstract art, rather than for, or against, this type of visual art. The authors of this test chose abstract art

as a test medium because of their desire to determine preferences for formal and expressive aspects of paintings which are not influenced by peripheral or idiosyncratic interest in content.

Data are here presented of the preference of men and women art students and of men and women college students, all four groups containing 50 subjects. Comparisons will again be made of the differences in preferences between men and women and also between these two types of students. The first method of statistical analysis is that used above in determining sex differences in preferences for metaphors: from the total of 25 paintings, the number of paintings in which these groups of subjects differ significantly in preference will provide evidence whether the groups do differ significantly in their aesthetic responses. These comparisons are summarized in Table 4.

TABLE 4
NUMBER OF PAINTINGS (OUT OF 25) IN WHICH GROUPS DIFFER SIGNIFICANTLY

	Art students (men)	U. of Conn. (women)
Art students (women)	2 ($P = .36$, $r_m = .93$)	13 ($P = .0001$)
Wesleyan (men)	13 ($P = .0001$, $r_m = .68$)	4 ($P = .034$)

Table 4 may be read as noting that the men art students differ significantly from women art students in their preferences for only two paintings from the group of 25 and that such a difference (2 out of 25 differing each at a 5 per cent level) could occur slightly more than one time out of three by chance. So these men and women do not differ significantly in their *overall* preferences within the field of abstract art. Furthermore, the correlation between the mean scores on paintings for these two groups is extremely high ($r = .93$). But significant differences are found between college men and women ($P = .034$) who do not have special interests in fine arts and who have not had similar art training. The correlation between mean scores of these groups is a modest one ($r = .68$). The tremendous difference between the preferences of the art students and the regular college students is striking, since the students differ significantly in 13 paintings out of 25 so that their overall difference in preference could happen by chance less than one time in 1000.

It is apparent, therefore, that preferences for types of abstract art in this study are much more strongly determined by type of college background and by artistic interest and training than by differences in sex. Nevertheless, significant differences in sex preferences not only are apparent between the

nonspecialized groups of college students, Wesleyan University and the University of Connecticut, but also may be shown to exist between the overall groups of 100 women and 100 men.

The first evidence for sex differences in aesthetic preference being maintained between these two overall groups is in the correlation between the masculine-feminine preferences of the two groups. Here, each of the 25 paintings was scored for both art students and regular college students, according to the amount that men preferred it, as compared to women, using the differences between the means of the men's judgments and the women's judgments as the measure of difference. The 25 masculine *vs.* feminine scores of the art-student group were then mathematically correlated with the similar scores of the college group for the same paintings with a positive correlation of $r = .25$ resulting. This correlation is low and, in view of the limited number of paintings on which it is based, is not at a level of statistical significance. But it must be considered a meaningful trend since it appears in spite of the obviously great differences in preferences between the women of the two student groups, and in turn, between the men of these two groups.

Further evidence is available of sex differences in preference being maintained across these two groups in spite of differing backgrounds of class, vocational interest, and training. When the five paintings which represent the greatest difference in preference between men and women art students are examined in terms of the direction of preference of men and women college students, the direction of preference (by men or women) is found to be the same in all five cases. Conversely, when the five paintings most differentiating the preferences of college men and women are compared with the direction of sex preference by art students for these five paintings, a similar correlation is found. One painting (and only one) of these five paintings is duplicated in the five paintings most differentiating the Hartford men and women, and three out of four of the remaining paintings differentiating college men and women are preferred in the same way by men or women art students. Statistically, this means that eight out of the nine paintings most distinctly preferred by men or women of one group, are similarly preferred by the men or the women of the other group. This degree of correlation of preference, eight out of nine times, would occur by chance less than one time out of twenty ($P = .047$).

It is interesting to consider the qualities of these nine paintings which differ most in their appeal to these young men and women. They are listed in Table 5 in order of descending size of difference in preference opposite a designation to indicate which sex of which school prefers the painting

(M-A refers to men of art school, W-C to women of college). In addition a phrase *prefer* or *dislikes less* is added to clarify the nature of the difference in preferences by men or women for differences in preference may, of course, be of these two types.

TABLE 5
PREFERENCES FOR NINE PAINTINGS

Significantly preferred by	Artist and Title
W-A (prefer)	Shanker: Circle Image
W-A (prefer)	Guston: Form (1955)
M-C (dislike less)	Leger: Composition (1919)
W-A (dislike less)	Helion: Red Tensions
W-C (prefer)	Morris: Montauk (1957)
M-A (dislike less)	Mondrian: Composition #2 (1920)
M-C (dislike less)	Kandinsky: Bright Circle (1927)
W-A & C (prefer)	Pollock: #17 (Met)
W-C* (prefer)	Pollock: Autumn Rhythm

* But not preferred by Art School women.

What qualities do these paintings have in common which evoke these differences in the preferences (and less-accentuated dislikes) of men and women? Women, as compared to men, have a positive preference for the paintings listed in Table 5 by Schanker, Pollock, Guston, Morris, and Helion. In form and composition the first four of these paintings avoid the extremes found within the total group of extreme geometrization, on the one hand, and the impulsive handling of line and mass with striking effects, on the other. Instead, these four paintings do not emphasize mass and have a subdued and unobtrusive regularity in form. Thus, the Pollock is decorative in effect, the Schanker is composed of soft swirls and Morris' *Montauk* retains the basic, though abstracted, framework of a fisherman's house. In color and tone the paintings are modulated, both in the chiaroscuro effects of Morris and Schanker, the decorative style of the Pollock and the even rose tone of the Guston (the most popular of the 25 paintings for all groups except that of the Wesleyan men).

In the case of male subjects, preference is expressed in our table in terms of the fact that men, as a group, disliked three paintings significantly less than women did. With no intention of suggesting new canons of art criticism based on negative appreciation, it may be noted that these three paintings are bright in color and tone and highly geometrized in form. Accordingly, these paintings represent a style within modern art avoided by the women in these groups under consideration. Helion's *Red Tensions* does belong to this

school because of its balanced presentation of geometrical forms, but the overall effect of color and tone in this painting is subdued: hence, presumably, its appeal to the women of these groups.

In the last paragraph some paintings have been characterized as representing a certain "style" in abstract art. This terminology did not represent the judgment of the authors of this test, but was based on the results of the original standardization of the Abstract Art Test. In this procedure, intercorrelations were made of the preferences of 100 Wesleyan University students for all of the 25 paintings of this test. It has been described above how separate metaphor scales were secured by grouping those which had a statistically determined common meaning. In this way 13 metaphors on Conscience were grouped into a scale of 13 items for measuring attitudes toward Conscience on the continuum of "benign and supportive" to "cruel and coercive." Similarly, the 25 paintings under consideration were ordered

TABLE 6
FIVE ABSTRACT ART TYPES

Factor	Artist & Title	Factor	Artist & Title
I	Shanker: Circle Image Pollock: #17 (Met) Biala: Untitled (1956) De Kooning: Black Friday Hartung: Composition (1936)	IV	Guston: Form (1955) Morris: Montauk (1957) Hoffman: The Ravine Pollock: Autumn Rhythm Hoffman: Untitled (1957)
II	Mondrian: Composition in red, yellow, blue (1936-43) Mondrian: Square Composition (1922) Glarner: Relational Painting #75 Mondrian: Composition #2 (1920) Helion: Red Tensions	V	Donati: Kabara Donati: Toledano (1954) Brooks: Composition Scialoja: Una Altra Estate Brooks: Jackson (1950)
III	Kandinsky: Bright Circle (1927) Leger: Composition (1919) Miro: Ladder Brushes Against the Heavens Kandinsky: Yellow Surroundings Kandinsky: Improvisation (1912)		

into five separate types, or factors, in each of which five paintings formed a group because of the aesthetic qualities and patterns which they possessed in common for the subjects in this test. These five groupings, or types, or factors, are presented in Table 6.

Now this method of grouping is statistically sound, for each painting in each group has been found to be correlated significantly with every other

painting in its group in terms of the preferences of subjects, but not to be correlated with the paintings in other groups. (Art complied with logic in 24 paintings, but Scialoja's *Una Altra Estate* showed family resemblances to both Factors I and V. A court decree ordered it to support Family V and to absent itself from Family I during this discussion of test results.) But are these five groups based on distinct qualities of art, as well as statistical inter-correlation? Do they represent different art styles? Here validity depends on "confrontation" rather than statistics. The authors of the Abstract Art Test believe that these groupings are aesthetically meaningful. In reporting the standardization of this test, they described these five groups in the following terms:

Factor I: ". . . characterized by a predominance of the color black combined with an impulsive, seemingly uncalculated technique characterized by slashing and in some instances dripping."

Factor II: "These are all paintings of rectilinear design done either by or after the style of the Dutch painter, Mondrian. They are notable for their seeming simplicity and use of black, white and primary color."

Factor III: "These are all characterized by a clean, geometrical style, though with rotund and curvilinear features. Colors here tend to be relatively unmodulated, and the structural forms rationalized, though the general design is much more complex than in Factor II."

Factor IV: "Here the common characteristic is a sort of diffuse and chaotic design, without clear configurational focus and with an almost total absence of geometric rationalization."

Factor V: "These are all characterized by massive configurations without obvious geometric rationalization and embodying an impetuosity of style comparable to Factor I but with a more bold and deliberate effect."

Possessing these scales for assessing preference for abstract art in terms of five different types, or styles, a more detailed and meaningful examination may be made of the differences already noted between men and women and between art students and regular college students. These results are presented in Table 7, with comparisons possible there between the means of preference ratings for the four groups of subjects for the five types of art. It should be noted that the rating scale for this test used a rating scale in which "1" represented highest preference and "7" greatest dislike, so that a lower mean score indicates a greater preference for an art style.

A comparison of these sets of means yields the following conclusions:

1. Though men and women art students did not differ significantly in their overall preferences for the 25 test paintings, these two groups do differ

TABLE 7
MEANS OF GROUP PREFERENCES FOR TYPES OF ABSTRACT ART
(A lower score indicates greater preference)

Groups	I	II	III	IV	V
Art students (men)	21.8	21.2	25.0	16.9	15.2
Art students (women)	19.7	20.9	26.3	17.0	16.2
Wesleyan (men)	20.5	22.3	19.3	18.6	20.3
U. of Conn. (women)	20.2	21.5	22.5	16.3	20.1

significantly in Factor I, preferred by women at a probability level of $P = .035$. The paintings of Pollock and Schanker, preferred by women, are in this group.

2. The preferences of Wesleyan men have already been shown to differ significantly from those of the University of Connecticut women. This general difference is shown here to reside mostly in the men's greater preference for Factor III ($P = .016$) which contains the "less disliked" paintings by Leger and Kandinsky, and in the women's greater response to Factor IV ($P = .035$). The paintings of Guston and Morris, preferred by women, are in this group.

3. The tremendous difference previously shown to exist between the art students as a group and regular college students as a group (significant differences in 13 paintings out of 25) can now be shown to depend upon opposite responses by these two groups to two of the art styles. College men have no special preference, positive or negative, for Factor III (Miro, Leger, and Kandinsky); college women as a group have a mild dislike relatively for this style; but art students of both sexes express an aversion to this style of painting. The difference between men art students and men college students is significant at the level of $P = .001$; the significance level of the corresponding difference between the two groups of women is $P = .003$. The other style of abstract art toward which the aesthetically committed students differ radically from the uninitiated is Factor V (Donati, Scialoja and Brooks). The college groups, both men and women, place this style of painting in the middle of their preference range, but the art students, both men and women, prefer this style to all others. The statistical significance of these differences in approach to Style V is even greater than that of Style III ($P = .0001$ between the male groups, and $P = .0005$ between the groups of women).

The interesting question is then posed as to the underlying reasons for the different canons of aesthetic judgment governing the preferences of art students for these styles of abstract art. Information on this issue is limited, but it is an interesting fact that the first-year art students in this study tested in April, were already fully committed to a preference for art Style V and a dislike for art Style III. A comparison of the mean scores of the preferences of students of each art class shows a remarkable uniformity through all years, with first-year students closely resembling the upper-class group in their patterns of preference.

3. *Tartan Designs*

The subject of sex preferences for visual arts was introduced in this paper by stating that this problem would be approached through data provided by two tests in this field. The contribution of the Abstract Art Test has just been discussed and it now remains to present compactly some significant results obtained by the administration of the Tartan Test, the standardization of which preceded the test of abstract art by several years (6, 9). Here an array of 30 tartan plaids, reproduced realistically in color prints, served as the set of art objects which are rated by subjects in terms of preference. The choice of these plaids as objects for rating has major advantages in research since they possess the virtue of having some aesthetic complexity and subtlety and yet are available in a range of colors and patterns which can be defined objectively, even in quantifiable terms. Measures of preference ratings in the Tartan Test have yielded modest but significant correlations with measures of personality, motivation, and vocational interest (8), as well as to educational level and class status (7).

In the series of tests to be discussed here, the 30 Tartan Test plaids were rated for preference by four groups, each of 50 subjects: the men and women students of the Art Department of the University of Hartford, who also were subjects in the Abstract Art Test; a group of Wesleyan undergraduates, composed of different subjects from those on whom a report has just been given; and a group of nurses in training at the Middlesex Hospital, in Middletown, Connecticut. Table 8 presents the mean scores of these groups, as expressing their relative preferences for four basic patterns of tartan plaids: warm color (red, orange, yellow) and open broad design; warm color and closed, fine design; cold color (blue, green) and open design; and cold color and closed design. A lower score indicates a greater preference for a given type of tartan design.

TABLE 8
MEAN SCORES OF GROUP PREFERENCES FOR TARTAN PLAIDS
(A lower score indicates greater preference)

	Warm-Open	Warm-Closed ^a	Cold-Open	Cold-Closed
Art students (men)	31.7	28.2	26.3	20.1
Art students (women)	32.5	29.7	23.4	22.0
Wesleyan (men)	29.8	28.6	24.2	24.1
Middlesex nurses	29.8	32.0	20.0	26.2

A study of Table 8 shows no large differences among the four groups in respect to warm-open tartans, and only one large difference in response to warm-closed tartans, which Wesleyan men prefer markedly more than do the group of nurses ($P = .006$). But greater differences are apparent in respect to cold-open and cold-closed tartans, both between the sexes and between art students and their test counterparts. The meaning of these trends becomes apparent when all four groups are scored in terms of their preference for the two basis dimensions which differentiate the 30 tartans: the range in color from cold to warm, and the category of open design as opposed to closed design. This array of scores is presented in Table 9. A lower score in a dimension means that the first pole of the dimension is preferred, cold as opposed to warm, and open rather than closed design.

TABLE 9
MEANS OF GROUP PREFERENCES FOR TARTAN PLAIDS
(A lower score indicates greater preference)

	Cold-Warm	Open-Closed
Art students (men)	45.9	49.7
Art students (women)	41.9	44.1
Wesleyan (men)	47.4	41.4
Middlesex nurses	40.8	31.8

A comparison of the groups by means of Table 9 reveals some basic differences between the aesthetic preferences for plaid patterns by men and women and by the art students as compared with the nonspecialists in art.

1. Men tend to prefer warmer colors than women ($P = .08$ in the case of men and women art students and $P = .009$ in the comparison between college men and nurses).

2. There is no significant difference in preference for warmer or colder

The interesting question is then posed as to the underlying reasons for the different canons of aesthetic judgment governing the preferences of art students for these styles of abstract art. Information on this issue is limited, but it is an interesting fact that the first-year art students in this study tested in April, were already fully committed to a preference for art Style V and a dislike for art Style III. A comparison of the mean scores of the preferences of students of each art class shows a remarkable uniformity through all years, with first-year students closely resembling the upper-class group in their patterns of preference.

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A comparison of the groups by means of Table 9 reveals some basic differences between the aesthetic preferences for plaid patterns by men and women and by the art students as compared with the nonspecialists in art.

1. Men tend to prefer warmer colors than women ($P = .08$ in the case of men and women art students and $P = .009$ in the comparison between college men and nurses).
2. There is no significant difference in preference for warmer or colder

colors between art students as a group and the groups of college men and nurses.

3. Men tend to prefer closed, rather than open patterns of plaids ($P = .09$ for the difference between men and women art students and $P = .009$ between Wesleyan students and Middlesex nurses).

4. Art students prefer closed, rather than open tartans, compared to the college students and nurses ($P = .02$ for the difference between the two groups of men and $P = .0003$ for the difference between the two groups of women).

So men in our middle-class society prefer warm, open design tartans and women prefer colder, more closed designs. This information gains in significance when it is placed in the context of other data on the nature of responses to visual stimuli and to visual art. Thorough study by psychologists of preferences for pure colors has shown that there is no difference between the sexes in these preferences, thus encouraging the hypothesis by some research workers that some innate physiological mechanism is responsible for this agreement in preference. But now the introduction of a minimal degree of color contrast and a variation in the size of color stripes and the number of cross-hatched lines not only produces a tartan plaid, but also an aesthetic object, for no physiological mechanism may be presumed to determine the difference in preferences shown by our data. It may be argued, however, that this choice of tartans is one dictated by social taste, rather than by a response to artistic style. This explanation does not seem plausible, because women's expressed preference for the subdued color and controlled line contrasts with the obvious fact that women in our society are expected to dress more colorfully and freely than men and to choose decorations and artifacts which are more dramatic than those chosen by men.

On the contrary, it seems probable that sex differences in preferences for tartans represent a meaningful difference in aesthetic response so that the tartan plaids should be placed at the beginning of a continuum of visual art which increases to the complexity of form and subtlety of expression found in "serious" art. In this continuum it is possible now to present some significant data about sex differences in preferences for designs and color harmonies which are intermediate in complexity between the tartan plaids and the general range of abstract art previously considered. A brief but fascinating report in the psychological literature by Walter Woods (19) has summarized a long-term and large-scale study on responses to designs of varied color combinations, with designs chosen to be subordinate in prominence to the color harmonies. Among all groups over 10 years of age in this

study, significant differences in sex preference were found for four of the nine colored designs comprising the test. An examination of these differences strongly corroborates the nature of the sex differences reported by the present authors in preferences for art materials of both a simpler order (tartans) and of a more complex level (abstract paintings).

To summarize Woods' findings:

1. In comparison to men, women preferred most Card 1, composed essentially of two shades of gray. (The parallel to the outstanding preferences of women for individual paintings in the Abstract Art Test is obvious.)

2. Men found Card 4 more attractive than did women, a card presenting "spectral extremes, orange-red, and blue-violet, maximally contrasting colors. . . ." (Note the men's greater tolerance for bright color in the Abstract Art Test.)

3. Women found Card 9 unattractive: ". . . two intense vibrating reds, an orange-red and a red-purple. . . ."

4. Men found Card 5 significantly less attractive than women: ". . . combination of red and green darkened to reduce intensity, variety, and contrast." (Here again, as in the Tartan Test, women prefer the more subdued color patterns and men find the brighter pattern more attractive.)

So perhaps a paradox is presented. As the couple moves through the Museum of Modern Art on Sunday afternoon, the man in the grey flannel suit lingers before the swirling colors of a Kandinsky and the woman in the cerise jacket finds her eyes returning to a Seurat monochrome drawing. But this situation remains a paradox only if the aesthetic experience is regarded as an extension of either sensory stimulation or of social taste.

4. *Music*

Music, of all types of art, has been most fully studied in terms of the interrelationships of its formal and expressive aspects, and, more recently, in terms of motivational processes assumed to be involved in responses to music. None of these studies, however, addresses itself specifically to the problem of sex differences in preferences for varying types of music, even when an investigation sets out to determine the major variables affecting differential response to music (12). But from these studies there does accumulate evidence that men and women do react differently to music of different types (1, 14, 18), though this statement is usually made in a laconic manner and is not examined further. One interesting article addresses itself to the problem of sex differences in an oblique way by showing that subjects can agree with a high order of consensus on the "masculinity" and

"femininity" of composers, of specific selections of music, of qualities and forms of music and of the music of different instruments (2). In answer to questions about preference for composers, men and women both stated their preference for "masculine" music but the expressed preference of the men was greater than that of women.

From the point of view of the present paper, this study just reported would have benefited by obtaining direct reactions of men and women subjects to a range of musical selections, by studying the nature of the selections preferred by one sex rather than the other, and then to have analyzed, as one special problem, the formal and expressive qualities that characterized the differentiating selections. These characteristics could then be correlated with the sex preferring them and such a categorization of specific qualities of music as "masculine" or "feminine" would then be more meaningful. This has been the research approach described above in the fields of verbal imagery and visual art. A similar research has been conducted in preferences for music. Here, too, a special test instrument was devised to measure preference ratings (6). This music test consists of 16 brief selections from 19th century music, Romantic or Impressionistic in style, which combine permutations of tempo (fast-slow), mode (major-minor) and harmony (dissonance and consonance). The selections, as played by a professional pianist, are presented to subjects by a tape recording.

Data on sex differences in preferences for music are provided by studies of four groups: boys and girls of the junior class of a small city high school in Connecticut, 67 and 59 in number, respectively, and men and women schoolteachers, 32 and 28 in number. Table 10 presents a summary of the

TABLE 10
NUMBER FROM SIXTEEN SELECTIONS IN WHICH GROUPS DIFFERED SIGNIFICANTLY

	Men teachers	High school girls
Women teachers	0 ($r = .87$)	2 ($P = .19, r = .69$)
High school boys	1 ($P = .74, r = .79$)	1 ($P = .74, r = .93$)

overall degree of differences among the four groups in terms of the number of individual selections toward which groups differed significantly in their preferences. This table may be read as indicating that the high school boys differed from high school girls in their preferences for one musical selection out of 16 and that this difference in preference could occur by chance 19 times out of 100. Additionally, these two groups correlate at $r = .93$

in terms of group means for the 16 selections. From this table it is evident that negligible differences are found among these four groups, either in terms of sex or of age, and that musical preferences of the sexes are remarkably similar, as expressed by the correlation coefficients of $r = .93$ and $r = .87$.

The degree of correlation of the pattern of preferences among these four groups is shown in Table 11 by the parallel listing of the eight selections favored most by each group, ranging them from the top in order of prefer-

TABLE 11
EIGHT MUSICAL SELECTIONS MOST PREFERRED BY GROUPS

	High school boys	High school girls	Men teachers	Women teachers
Irish folk tune, <i>Foggy Dew</i> (#12)	#12	#12	#12	# 5
Debussy, <i>Sunken Cathedral</i> (#14)	#14	#14	# 5	#12
Schumann, <i>Italian Sailor Song</i> (#5)	# 5	#16	# 6	# 6
Debussy, <i>Girl with Golden Hair</i> (#16)	#16	# 8	#16	#16
Chopin, <i>Prelude in B Minor</i> (#8)	# 8	# 6	# 3	# 8
Beethoven, <i>Fifth Piano Concerto</i> (#6)	# 6	# 3	# 8	# 3
Schumann, <i>Entreating Child</i> (#3)	# 3	# 5	#10*	#10**
Debussy, <i>Perfumes of the Night</i> (#4)	# 4	# 4	#14	# 2**

* Schumann, *Knight of the Hobby Horse*.

** Chopin, *A Flat Etude* #10.

ence. Though this degree of parallelism among the top eight selections of these groups is extreme, these results are in accord with a study of students of varied age and socioeconomic background who did not vary appreciably in rating their preferences for five classical selections not familiar to them (3).

A study of the rank order of preferences in these four groups in terms of the basic formal elements represented in these selections shows two interesting trends: (a) The high school students did not respond selectively to either mode or harmony, but decisively preferred slow selections, rather than fast, since seven out of the eight selections most favored by both boys and girls were in slow tempo. Men preferred six and women five slow selections out of eight. (b) The women schoolteachers showed a greater dislike for dissonant music, preferring seven consonant selections among

their top eight selections, though the younger groups and the men teachers placed three dissonant selections among their first eight.

In contrast to the results obtained in all three of the tests previously discussed, there are no *overall* differences between the sexes in their preferences for these musical selections. Once again, however, as in the studies of verbal imagery, abstract art, and tartan plaids, it is possible, by a statistical analysis of the intercorrelations of preferences for the 16 musical selections, to determine the special musical styles found there, and to compare the preferences of the present four test groups for these styles. Two distinct styles appear to run through these pieces of music. The first (Style A, in Table 12) is broad in nature and groups seven selections in a bipolar continuum. Five of the six selections at one pole are minor and dissonant in character and are grouped by preferences in opposition to the selection from Beethoven's *Fifth Piano Concerto*, which is major-consonant in style. The expressive quality of the six grouped selections is that of troubled, restless emotion, in contradistinction to the mood of the Beethoven Concerto. Style B, in Table 12, a grouping of five different selections, may be considered to represent a calm and reposeful mood, touched with nostalgia. The formal emphasis here is on slow movement expressing a calm mood, to which either minor mode or dissonance adds the overtone of emotional tension termed *nostalgia*. Table 12 presents the means of the preference scores of high school students and teachers for these two music styles.

TABLE 12
MEAN SCORES OF GROUPS FOR MUSICAL STYLES

	Men teachers	Women teachers	High school boys	High school girls	Teachers (combined)	Students (combined)
Style A	13.25	16.30	16.22	15.75	14.67	16.00
Style B	5.53	4.77	8.36	8.94	5.18	8.63

Considering first Style B, it is apparent that there is no difference in response to this style according to sex. But this slow, calm style is preferred by the younger groups, as compared to the older ($P = .001$). As for Style A, it will be seen that there is no difference in the response to this restless, troubled style by the groups of boys, girls, and women, but that men like this style somewhat less than do women teachers (but only $P = .30$) and significantly less than the other three groups combined ($P = .02$). The three musical selections which most clearly differentiate between the preferences of the men and women teachers are, in order of size: (a) Debussy,

The Sunken Cathedral (preferred by men, Style B, $P = .09$) ; (b) Debussy, *Les Collines d'Anacapri* (preferred by women, Style A, $P = .12$) ; (c) Rebi-koff, *Nereid* (preferred by women, Style A, $P = .18$).

These data on preferences for selections and styles of music accord with the findings reported above in the studies of verbal imagery and visual art in that differences between groups in terms of such variables as social class, special training, and vocation reveal greater and more significant differences than those found in comparing men and women. The results of this study of music preferences differ from the others reported, however, because the preference differences between the sexes are lower in the case of music. This result is unexpected, for it is generally agreed that music is preeminent among the arts in its capacity to express patterns of mood and feeling and to arouse and resolve these patterns symbolically. There may be two reasons for the lower order of significance of the findings of this music study. First of all, the two groups of schoolteachers under comparison here were small in number, 32 men and 28 women, so that variability through chance may have yielded groups unusually similar in composition. Secondly, the choice of 16 musical selections from the late Romantic and the Impressionistic composers of the 19th century (6) undoubtedly resulted in a limited range of expressive style which would necessarily fail to differentiate subjects as fully as might be desired. It is noteworthy, according to the consensus of judgment as to the "masculine-feminine" music style of composers reported above, that but one selection of the 16 in the Music Test is by a markedly "masculine" composer (Beethoven). So further work must be done to determine the degree and the manner to which men and women do differ in musical preference.

D. SUMMARY

Impelled by the slight amount of consideration that has been given to the problem of sex differences in aesthetic preferences, this paper has surveyed data on this subject provided by research projects conducted by the authors. These data consist of systematic comparisons of the preferences of groups of men and women of similar backgrounds for a range of art objects within an art field, as well as the art styles revealed within a medium by statistical analysis. By a further comparison of the preferences of two sets of groups of men and women, the size of differences in preferences by sex has been compared directly to the amount of difference due to other variables such as age, social class, special art training and vocation.

These results, though obtained from groups necessarily limited in size

and range, combine with the evidence from other studies to permit these conclusions:

1. Men and women do differ significantly in their preferences for art of all types.
2. These differences in preference tend to be small in absolute terms when the total range of an art field is considered, but sex differences are greater in terms of specific styles within a medium of art.
3. These sex differences are generally considerably less than the differences in preference caused by such variation among groups as age, social class, special training and vocation.
4. Even the differences in preference due to the latter variables, with the possible exception of special training, are not of as great magnitude as is found in a comparison of the interests and attitudes of similar groups.

5. A study of the specific art objects within art fields which are differentially preferred by men and women supplements our knowledge of the differences between men and women in their individual and social roles and provides the basis for a special approach to the psychology of the aesthetic response.

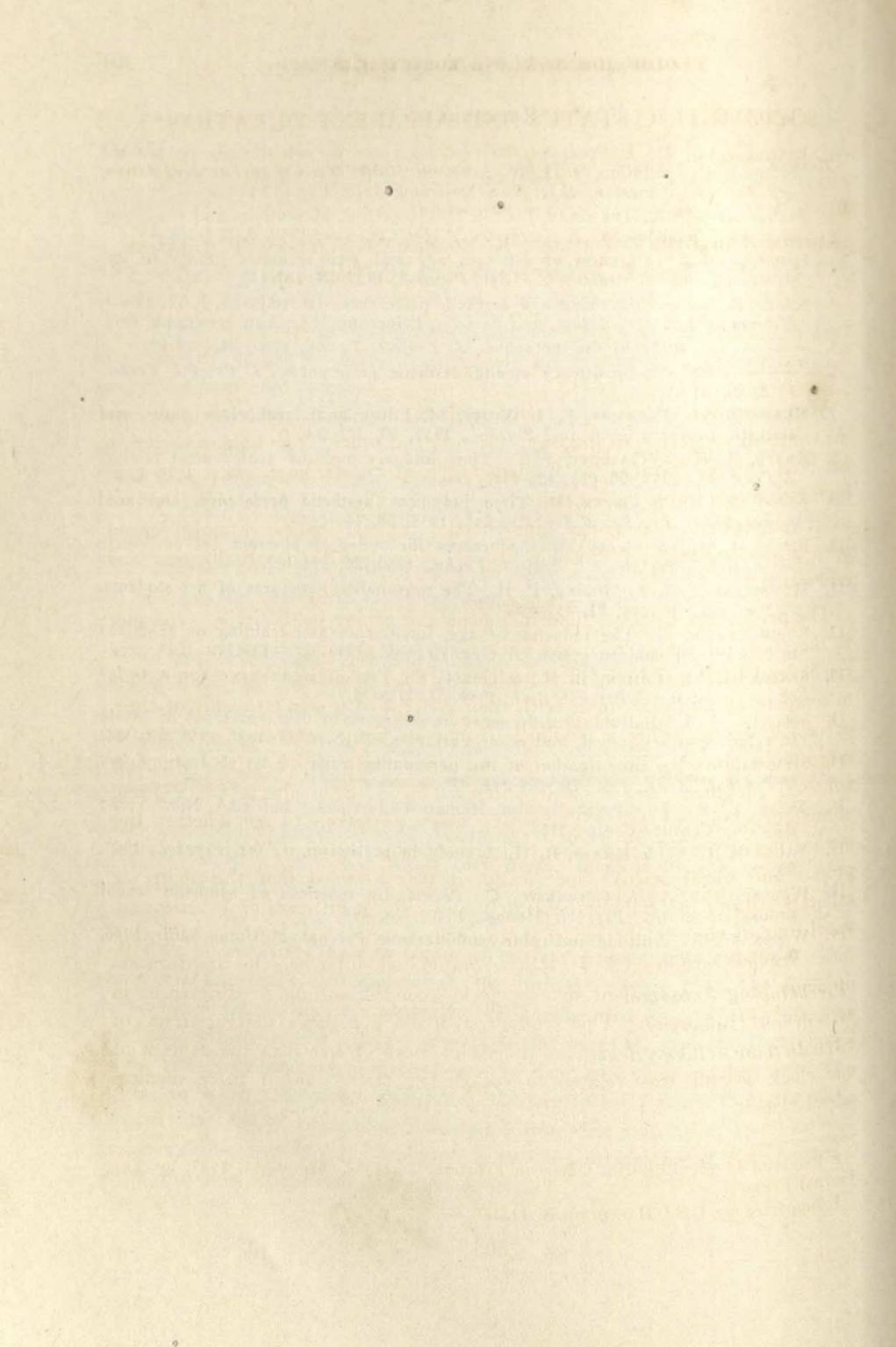
This last conclusion (#5 above) may be expanded into a few generalizations based on the art objects and styles specifically mentioned in this study. The following three examples may be kept in mind as illustrative of the generalizations. From "verbal imagery," men see themselves as an "electric generator," women as "a humming teakettle"; from abstract art, men prefer Leger's *Composition, 1919*, glorifying the machine in bright color, and women prefer Morris' *Montauk*, subdued in tone and possessing an unobtrusive structure; in music men prefer the solemn and resounding *Sunken Cathedral* and women prefer the rapid and troubled *Collines of Anacapri*.

It may be suggested that in terms of *content* women tend to prefer the personal rather than the impersonal, the intimate rather than the grand, the sensuous rather than the abstract. Within the area of *form* in terms of dynamics, women prefer the less powerful, the bounded, and the controlled in the phases of intensity and contrast. In tone and color women tend to prefer the softer, the more modulated, the controlled, rather than the expressive. In degree of tension (variation from the norms of form as in dissonance, deviancy in color harmony, innovation in language style) women prefer the more conventional canons of art.

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SOCIOMETRIC STATUS AND APPARENT DURATION*¹

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A. PURPOSE

Man's nervous system is endowed with the ability to resolve stimuli into the temporal properties of duration, interval and order. The human organism has been able to harness the fundamental sensory attribute, *time*, into calibrated, communicable scales permitting the development of a high level of social complexity. Day-to-day interpersonal transactions increasingly depend upon a sophisticated and reliable system of temporal conceptualization and calibration.

The psychology of time, time judgment and timing behavior has relevance to the study of man's relations with man, but previous work in this area emphasized basic psychophysical problems (8). A method that required *Ss* to compare an auditory input with their concept of a standard unit of time, one clock second, using a modified method of limits procedure and a two-category judgment scale (*i.e.*, *more* and *less*) was sensitive to alterations in temporal judgment due to schizophrenia (5, 7), drug effects (1, 2), and normal development (6). This study was undertaken to see whether this method might provide clues about the relationship between a basic perceptual process and social status. Specifically, it was assumed that the ability to calibrate sensory information accurately and reliably in terms of a consensual, social unit of time might reflect more general social characteristics and abilities. Previous studies (3, 4) showed individual differences in the duration of input judged equivalent to one clock second, resulting in differences in accuracy of judgment. This study tested the hypothesis that accuracy of estimation of auditory durations judged as *more* or *less* than the concept of one clock second was related to sociometric status within three medical school classes.

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B. METHOD

A sociometric questionnaire² and a temporal judgment task were administered to the members of three different medical-student classes during their sophomore year.

1. *Sociometric Questionnaire*

S was asked to select colleagues according to the following instructions:

1. Suppose there was to be an important gathering of representative students from all the medical schools in the United States. Each college is to be represented by five students. They are to be chosen, not for any special ability, but merely as worthy representatives of their institutions. The only purpose of the gathering is that of informal association of students with each other. It is fair to assume that your school will be judged by the students who represent it. What five students, now in the medical school, would you choose as most worthy of representing your school? What students would you regard as *not* suitable for representing your school at such a conference? Name as many as you wish.

2. Suppose that, after leaving medical school you could select those students whom you desire as close intimate friends in future years. Assume that geographical and other considerations can be ignored. What student (if any) or students who are now in school would you choose for close intimate friendship in future years if you could? Name as many as you wish. What student (if any) or students would you definitely *not* choose as close friends in future years? Again name as many as you wish.

The number of choices and rejections for leadership and friendship was counted for each *S*.

2. *Time Judgment*

An electronic timer activated auditory durations with a reliable and accurate range of .01 to 9.99 seconds. An audio-oscillator and headphones provided a tone of 725 cps and comfortable amplitude.

Ss were presented a series of sounds using a modified method of limits procedure with a .1-second step interval and responded to each duration with the report "more" or "less" indicating a judgment of more or less than one second. The test consisted of 15 alternating runs of ascending or descending durations starting at 1.0 second. If *S* reported "more" to the initial 1.0-second

² The authors are indebted to Dr. S. Bloom for his valuable collaboration in this phase of the investigation. Dr. Bloom constructed the questionnaire and collected the sociometric data.

stimulus, the first run was of a descending nature, whereas if *S* reported "less" to the initial stimulus, the first run ascended. Each ascending run terminated upon three consecutive reports of *more* and each descending run terminated upon three consecutive reports of *less*. The ascending and descending runs were continuous.

The percentages of each duration judged *less* for the last 10 runs were plotted on arithmetic probability paper and a straight line visually fitted. The Second Estimation Point (SEP) or duration which *S* reported "more" and "less" than one clock second 50 per cent of the time was derived from these plots. Those *Ss* whose SEP deviated from 1.0 second by .05 second or less were designated as *Accurate*. If *S* obtained an SEP of between .95 second and 1.05 seconds, it was assumed that he was able to calibrate subjective experience with a vivid social concept. Those *Ss* whose SEP deviated from 1.0 second by .60 second or more were designated as *Inaccurate*. It was assumed that these *Ss* were less able to calibrate experience with social standards. Two groups of *Ss* were derived from each of the three classes, an *Accurate* and an *Inaccurate* SEP group.

C. RESULTS

The Median SEP for Class I was .85 second, for Class II was .72 second, and for Class III was .94 second.³ Mann-Whitney U tests indicated no significant SEP difference among classes.

Table 1 shows the SEP and sociometric data for the *Accurate* and *Inaccurate* groups derived from the three classes. Table 2 summarizes the Median number of choices and rejections for prestige and friendship for the *Accurate* and *Inaccurate* SEP groups. Table 3 summarizes the results of Mann-Whitney U-test comparisons of the number of choices and rejections for prestige and friendship between the *Accurate* and *Inaccurate* groups.

The Class I *Accurate* SEP group differed from the *Inaccurate* group on all four sociometric measures. Class II provided smaller groups and although only one of the sociometric measures differentiated the *Accurate* from the *Inaccurate* groups, the trend is evident. The number of rejections for prestige and friendship differentiated the Class III *Accurate* and *Inaccurate* groups.

³ An incidental finding of interest demonstrated a significant Mann-Whitney U-test ($P < .005$) difference in SEP values between a group of all-medical-student *Ss* studied with this method ($N = 284$), and a group combining all other populations ($N = 125$). Medical students had longer SEP's (median .85 second) than the other *Ss* (median .62 second). This difference in time judgment may be associated with personality and social variables.

TABLE I
NUMBER OF CHOICES AND REJECTIONS FOR PRESTIGE AND FRIENDSHIP FOR EACH S WITH AN ACCURATE OR INACCURATE SEP
FOR THE THREE CLASSES

SEP	Prestige Choice	Accurate		Friendship Choice Reject		SEP	Inaccurate		Friendship Choice Reject	
		Prestige Reject	Accurate Reject	Friendship Choice	Friendship Reject		Prestige Choice	Inaccurate Reject	Prestige Choice	Inaccurate Reject
<i>Class I</i>										
.95	10	0	14	0	.10	0	21	7	7	15
.97	1	0	6	1	.20	4	3	7	7	4
.97	1	11	4	5	.23	0	1	7	7	0
.97	10	1	8	1	.25	2	6	9	9	3
.97	16	0	14	0	.25	7	2	8	8	1
.98	0	8	2	1*	.30	0	24	1	*	11
1.00	2	0	7	0	.30	0	28	2	2	22
1.02	13	0	10	0	.33	0	0	2	2	0
1.03	10	0	7	0	.33	1	10	4	4	5
1.04	9	0	19	0	.36	2	1	9	9	0
1.05	5	0	9	0	.38	0	21	2	2	14
					1.62	6	3	9	9	4
					1.63	3	1	6	6	0
					1.75	2	0	11	11	0
<i>Class II</i>										
.96	3	0	8	0	.21	0	6	2	2	5
.96	1	1	15	1	.26	22	0	13	13	0
.97	6	0	15	0	.32	0	26	2	2	22
.97	10	2	10	3	.32	1	7	2	2	3
.98	10	2	26	0	13	33	4	13	13	2
1.00	0	0	9	1	.35	4	2	10	10	1
1.04	0	3	14	0	.39	14	0	12	12	0
1.05	1	0	11	1	1.70	1	3	2	2	1
1.05	2	1			1.76	0	0	9	9	0
					1.84	2	10	4	4	10
					1.90	3	6	3	3	4

TABLE 1 (*continued*)

SEP	Accurate		Friendship		SEP		Inaccurate		Friendship	
	Prestige	Choice	Choice	Reject			Prestige	Choice	Choice	Reject
<i>Class III</i>										
.95	3	0	5	0	.15	11	0	10	0	0
.95	4	2	5	3	.17	0	16	3	12	
.96	0	0	0	1	.22	0	43	1	16	
.97	2	2	5	2	.26	3	5	6	7	
.97	0	0	9	1	.35	4	4	9	4	
.98	1	1	5	0	1.60	1	6	5	2	
1.00	3	1	10	1	1.60	0	13	1	3	
1.02	1	6	4	7	1.65	0	4	3	2	
1.02	1	0	4	0	1.71	0	10	3	5	
1.05	3	1	7	1	1.75	0	3	4	6	
1.05	8	5	1	1	1.80	1	6	4	2	
1.05					1.81	0	1	8	1	
					1.95	4	0	11	0	
					2.80	1	0	1	0	

TABLE 2
MEDIAN NUMBER OF CHOICES AND REJECTIONS FOR PRESTIGE AND FRIENDSHIP
FOR ACCURATE AND INACCURATE SEP GROUPS

		N	Prestige		Friendship	
			Mdn choices	Mdn rejections	Mdn choices	Mdn rejections
Class I	Accurate	11	9.0	0	8.0	0
	Inaccurate	14	1.5	3.0	7.0	3.5
Class II	Accurate	8	1.5	1.0	10.5	1.0
	Inaccurate	11	3.0	3.0	4.0	2.0
Class III	Accurate	11	2.0	1.0	5.0	1.0
	Inaccurate	14	0.5	4.5	4.0	2.5

TABLE 3

CONFIDENCE LEVELS MANN-WHITNEY U TESTS OF SIGNIFICANCE COMPARING ACCURATE
AND INACCURATE SEP GROUPS FOR THE NUMBER OF CHOICES
AND REJECTIONS FOR PRESTIGE AND FRIENDSHIP

	Prestige Choice	Prestige Rejection	Friendship Choice	Friendship Rejection
Class I	.01	.01	.10	.05
Class II	—	—	.10	—
Class III	—	.025	—	.05
Σ Class I, II, III	.05 *	.005	.025	.005

All four sociometric measures significantly separated the combined *Accurate* and *Inaccurate* groups. The rejection measures were the most differentiating variables.

D. DISCUSSION

It is not surprising that the accuracy of temporal estimation is related to social variables. Interpersonal relations depend upon an individual's ability to deal with private experience in terms of socially agreed-upon units, standards and concepts that define *reality* for a group. Raw experience is a function of the attributes of man's nervous system, and social experience is dependent upon a person's ability to translate sensory information into a consensual scale and calibrate input in terms of the agreed-upon units or standards. The clock second is one consensual unit of time, permitting the social exploitation of man's highly refined ability to temporalize inputs. If prestige and friendship status are related to one's ability to calibrate private experience with social standards, more accurate people should be rated higher

on these sociometric characteristics. This study demonstrated such a relationship.

It is of interest to note that schizophrenic patients demonstrate both socialization and SEP defects (5, 7, 9). It is likely that healthy people vary along a continuum of ability to calibrate experience with the cultural units of reality, and although the inaccurate SEP is more common in schizophrenic groups, it is not restricted to patient populations.

Several questions worthy of additional study emerge from these findings. First, is this sociometric-SEP relationship limited to medical-student classes in general, or perhaps to one medical school in particular? Second, are we dealing with a basic and general time judgment-sociometric relationship or is this finding limited to these temporal estimation and sociometric methods? Third, what other social units of magnitude and dimensions of perception and judgment are related to sociometric status?

E. SUMMARY

Three groups of medical students judged sounds as more or less than their concept of one clock second, and, selected or rejected classmates according to their prestige and friendship status. The sociometric measures of *Ss* with the most- and least-accurate time judgments were compared. The overall results suggest that with these time-judgment and sociometric methods, accuracy and status are related. The ability to calibrate accurately subjective time with social units of temporal magnitude is associated with more choices and fewer rejections for prestige and friendship. Rejection was more differentiating than choice. These findings are discussed in terms of the social implications of standards of magnitude.

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VISIBILITY IN SMALL GROUPS*

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A. INTRODUCTION

In recent years, a large number of studies concerning social perception and the accuracy of social perception have been published. Most of these studies, at some point, make a theoretical statement recognizing that social perception concerns at least two persons and that qualities of the perceived, as well as the perceiver, should be important considerations. The actual research, however, has dealt almost exclusively with "empathy" or some other quality of the perceiver. This paper focuses on the *object* of perception, specifically in the context of the interaction situation.

The central variable of analysis here is called "visibility." It represents the accuracy with which an individual's feelings or ideas are known to other members of the group. Visibility, in other words, is the other side of the coin from empathy. Operationally, in this study, it is an index of the accuracy with which a person's ranking of group members on certain qualities is predicted.

It may well be that this approach to social perception will contribute more to the understanding of the formation and structuring of groups than the study of empathy. The various phases in the development of social structure may be dependent upon the intragroup communication of "true" status or other pertinent information about the various group members. In the initial stages of interaction, the limiting consideration on effective communication may be how well information is emitted or how visible the individuals are, rather than how well it is received and interpreted.

Aside from any other consideration, this study contains an examination of social norms. What is visible is necessarily defined by the social values

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involved. Thus, it is not advisable to generalize any findings to other social contexts and societies except with the greatest caution.

Within the general problem, the exploration of visibility as an operative variable in the interaction situation, three specific questions form the framework for analysis:

1. Is visibility a general characteristic of the individual operating at the same level regardless of the specific content (nature) of the behavior to be predicted; that is, what is the relationship between visibility and content?
2. Is visibility related to whether it is a person's self-image or his images of the other group members that are to be predicted; that is, what is the relationship between visibility and frame of reference of the perceived?
3. What are the psychological and social determinants and consequences of an individual's degree of visibility?

B. BACKGROUND

One of the objectives of a study by Borgatta, Cottrell and Mann (6) was to analyze the relationships between four social-perception measures: "Assumed Similarity," "Assumed Group Similarity," "Accuracy of Prediction of Own Rank," and "Accuracy of Prediction of Others," and selected interaction characteristics. Results in this study, which took "content" and "elevation" into account, were encouraging and suggested that detailed study of social-perception measures might prove fruitful. Some caution on the feasibility and meaningfulness of such study had previously been indicated by Cronbach (8) and others.

Despite his theoretical misgivings, Cronbach's mathematical formulation of perception scores implicitly contains the precept that a conceptual framework of visibility is operationally valid. His "Differential Accuracy" (*DA*) score, which "reflects ability to predict differences between *Os* on any item," is essentially the score used in this paper. His formula (8, p. 192) is:

$$DA_{ij}^2 = \sigma'_{y'oi}^2 + \sigma'_{x'oi}^2 - 2\sigma'_{y'oi}\sigma'_{x'oi}r'_{y'oi}x'_{oi}$$

where: *DA* is differential accuracy,

y'_{oi} is the perceiver's description of how the perceived describes himself on items "i" transformed as a deviation from both item mean and perceiver mean,

x'_{oi} is the perceived's description of self on item "i" transformed in the same way.

The variances may be computed in either of two ways: over all those

perceived or over all perceivers. If they are taken over those perceived, we get the "Differential Accuracy" of the perceiver, or an "empathy" score; if they are taken over perceivers, we get the "Differential Accuracy" of the perceived, or "visibility." The formula is equally applicable in either case. Since, for a given group, total variance taken over perceived must equal total variance taken over perceivers, visibility is just another way of distributing the variances usually considered in terms of empathy.

Borgatta (5) makes statements pertinent to the prospective fruitfulness of a study of visibility. He found, in *ad hoc* groups, a marked tendency for behavioral descriptions and trait names to have high loadings on more than one orthogonal factor. He thus suggests that the less stable (i.e., shorter duration or more casual contact) the group, the more correlated the items in the factors. The rationale for this finding would be that in order to describe an individual's qualities competently, one must necessarily first *know* him. By inference, therefore, visibility (or lack of it) underlies the lack of orthogonality of the content of interpersonal perception in new groups.

C. RESEARCH DESIGN

1. *Experimental Procedure*

The sample consisted of male sophomores and juniors, paid volunteers, from the various colleges of the University. Subjects were randomly distributed into 35 five-person groups, each of which met for one 80-minute session. During the session, four statements were discussed for periods of 20 minutes each, and the group was directed to come to a "consensus" opinion regarding the statement at the end of each 20-minute period. Statements were selected from the General Orientations Profile (9), an attitude and interest inventory which the subjects had previously completed. The statements chosen represented unrelated (orthogonal) areas of interest as determined by a previous factor analysis. Thus, on a random basis, the situation for discussion was so drawn that the agreements among group members on the content being discussed would have an opportunity to shift from topic to topic. Discussion was scored using Borgatta's (3, 4) revision of Bales's (1) interaction process analysis categories.

Following discussion of the last topic, the group members responded to a set of questionnaires which included, among others: (a) The Behavioral Characteristics Form (BCF), Rankings—consisting of 40 items, 16 of which are personality trait names and 24 of which are behavioral descriptions. The subjects were asked to rank all the members of the group, including themselves, on these items. (b) The BCF Perception Form—consisting of

three items, "Friendliness," "Assertiveness" and "Intelligence," on which the subjects were asked to rank all the members of the group, including themselves, and then predict how each of the other members would do the rankings. These three items were chosen to represent three well-defined orthogonal factors arising out of prior factor analyses of the BCF, providing an opportunity to examine the current theory that perception measures should be examined taking content into account. The use of rankings served to circumvent many of the problems raised by Cronbach (8) and others in reference to measures of social perception.

At least a week previous to the group meetings, the subjects replied to a large battery of tests, including, among others: (a) The BCF Ratings—consisting of the same 40 items as the BCF Ranking Form. The subjects were asked to rate themselves, along a 10-point scale, on each item. (b) The Guilford-Zimmerman Temperament Survey—a standard "personality" test consisting of 300 questions that compose 10 factors.

2. *The Variables*

All Visibility scores were taken from the post-meeting BCF Perception Form. Each individual has six Visibility scores, one for Self-Image Visibility and one for Other-Image Visibility in each of the three content areas.

The score for Self-Image Visibility is defined as the total absolute difference between the rank *S* gives himself on the item and the ranks each of the *Os* thinks he will give himself. Other-Image Visibility is the total absolute difference between the ranks that *S* gives each of the *Os* and how they think he will rank them.

The six item ranking scores are taken directly from the BCF Rankings. Total Ranking is the sum of the ranks given to *S* by all members of the group, including himself, on the item. Self-Ranking is simply the ranking *S* gives himself on the item. These two scores were taken for each of the three items used on the Perception Form.

The replies of the subjects to the BCF, both Ranking and Rating, had previously been factor analyzed (5). Three factor analyses were done: (a) for Peer Rankings, (b) for Self-Rankings, and (c) for Self-Ratings. In each of the three analyses, factors arose which could be identified as Sociability, Individual Assertiveness, Manifest Intelligence, and Manifest Emotionality. In all cases, these were the four best-defined factors. For each of these factors, three or four items with high loadings in all of the analyses were chosen to represent the factor. The sum of the individual's scores on each of these items then became his composite score on the factor.

During the discussion sessions, all interacts were recorded and placed into one of 18 exhaustive categories. The total number of interacts in three of these categories constitute three of the variables used. Thus, the total number of interacts initiated by the subject that were described as "Showing Solidarity" comprise his score on one variable. His scores for giving "Acknowledgment" and showing "Antagonism or Defensiveness" were similarly determined. In addition, the total number of interacts he initiated in all 18 categories combined was used as a variable. The final 10 variables examined consist of scores on the 10 factors of the Guilford-Zimmerman Temperament Survey.

D. RESULTS AND DISCUSSION

For various reasons, 37 of the subjects did not adequately complete one or more of the tests and were, thus, not included in this analysis. This left a usable sample of 138. Unfortunately, the unusable subjects were so distributed that only 18 complete five-man groups remained available. Thus, although it would have been interesting to study the effects of the five-man groupings, the subjects were pooled into a single sample for this analysis. This procedure involves some pitfalls, and these will be considered in relation to any substantive findings which might be affected.

Table 1 presents an intercorrelation matrix (product-moment) for the six Visibility measures and the six items from the BCF Rankings on which they are based. The table is arranged so that the upper portion gives the intercorrelations of the Visibility scores; the right-hand portion, the intercorrelations of the Item scores; and the "middle" section, the correlations between them.

From the right-hand portion of the matrix, mutual dependencies for the three items chosen to represent orthogonal content areas are determinable. It is evident that the item "Assertiveness" is quite highly related to the item "Intelligence." Total rankings on these items correlate .64 and Self-Rankings correlate .37. On the other hand, the items "Friendliness" and "Intelligence" are comparatively independent of one another; Peer Rankings correlate .05 and Self-Rankings, .19. The relationship between the items "Friendliness" and "Assertiveness" is somewhat ambiguous, as Total Rankings correlate only .07, but Self-Rankings correlate highly at .35. These findings indicate that any further results, especially in the Intelligence area, must be closely scrutinized to make certain that they are not really artifacts arising out of a common relationship to Assertiveness.²

² The converse, of course, might be true. Relationships with Assertiveness might

TABLE 1
INTERCORRELATION MATRIX: SIX VISIBILITY MEASURES AND THE SUBSTANTIVE ITEMS ON WHICH THEY ARE BASED
(Product-moment correlations, $N = 138$)

1. *The Generality of Visibility*

Examination of the upper portion of Table 1 reveals that there is some substantial halo of general "visibleness" which operates regardless of either the content area or the frame of reference of the perceived. Across content areas the following relationships are found: Self-Image Visibility on Assertiveness is highly related to Self-Image Visibility on Intelligence (.41) and somewhat related to Self-Image Visibility on Friendliness (.22). Self-Image Visibility on Friendliness, however, is not related to Self-Image Visibility on Intelligence (.09). Other-Image Visibility on Assertiveness is correlated .38 with the same measure for Intelligence and .29 with this measure for Friendliness. Other-Image Visibility for Friendliness correlates .18 with the same measure for Intelligence. All but one of these six correlations are significant at the .05 level.

Within two of the three content areas, Assertiveness and Intelligence, the correlations across frames of reference (between Self-Image Visibility and Other-Image Visibility) are well above the significance level (.30, .25).³ In the Friendliness area, the correlation is only .14.

Emergence of this "halo" indicates that some people are generally more visible than others. This would be expressed in everyday experience by the feeling that some people are easier to "get to know" than others. Whether this is so because they fit some commonly held stereotype or because they possess some special ability or willingness to "get across" is another matter.

2. *Effects of Content Area and Frame of Reference upon Visibility*

The finding of a "halo" does not preclude either content area or frame of reference from markedly affecting visibility. If, for example, content area had no effect, the combined effects of "general visibleness" and the lack of independence of the substantive items should make the correlations noted much higher than they are. At no time, however, could these two factors create a correlation high enough to account for more than 16 per cent of the variance.

Table 2 presents an analysis of variance for Self-Image Visibility and Other-Image Visibility scores.

be "caused" by a common relationship to Intelligence. The previous factor analysis of the BCF, however, showed "Individual Assertiveness" to be so much the dominant factor that it is almost certainly the more "basic" consideration.

³ There is an extremely small experimentally induced relationship between Self-Image and Other-Image Visibility caused by the restrictions of ranking procedures. It is unlikely that the correlations would fall below the significance level if tested on the basis of a true chance distribution.

TABLE 2
 ANALYSIS OF VARIANCE FOR SELF-IMAGE^a AND OTHER-IMAGE VISIBILITY:
 ALL THREE CONTENT AREAS
 (*N* = 138)

Source of variance	Sum of ^b squares	df	Mean square	F ratio
Between content areas	923.7	2	461.9	7.909*
Content area \times Subjects	16009.3	274	58.4	
Between frames of reference	419.0	1	419.0	5.755*
Frame of reference \times Subjects	9967.8	137	72.8	
Content area \times Frame of reference	450.3	2	225.2	5.072*
Content area \times Frame of reference \times Subjects	12173.4	274	44.4	
Between subjects	18222.7	137		
Total	58166.2	827		

^a In order to analyze the variance attributable to between Frame of Reference, the meters of Self-Image Visibility and Other-Image Visibility had to be equated. On a random basis, Other-Image Visibility would be exactly four times as large as Self-Image Visibility. Thus, the scores for Self-Image Visibility have been multiplied by four before doing this analysis. Although this procedure makes the means comparable, it does not do the same for the variances which remain nonhomogeneous, since variances of means tend to be smaller than those of raw scores. Nevertheless, Boneau (2) has indicated that this should have little effect on the veracity of the *F* test. He points out that differences in the variance at least in the ratio of one to four would not constitute a serious enough violation of the relevant assumptions.

* Significant at the .05 level.

The *F* ratios for both between-content-areas variance and between-frames-of-reference variance are significant, indicating that visibility does, in fact, vary with both of these constructs. In addition, the interaction variance (content area \times frame of reference) also proved significant. Some insight into these processes may be gained from an examination of Table 3, which presents the means and standard deviations for the visibility scores.

In general, Visibility was highest in the Assertiveness area. This seems reasonable in terms of Borgatta's (5) theory and findings concerning the three content areas used in this study. In his several factor analyses of the BCF, by far the best-defined factor arising every time was one identifiable as "Individual Assertiveness." One major reason for this, he says, is that in *ad hoc* groups this factor is the most noticeable and, by inference, the most visible.

Looking at this in another way, one could say that the factor analyses indicate that the subjects more easily agreed upon (i.e., were more reliable with one another) what constituted "Assertiveness" than upon what constituted either "Friendliness" or "Intelligence." Two possible reasons for

TABLE 3
MEANS AND STANDARD DEVIATIONS FOR SELF-IMAGE VISIBILITY
AND OTHER-IMAGE VISIBILITY: ALL THREE CONTENT AREAS

	Mean	<i>SD</i>
Self-Image Visibility, Friendliness	19.45*	10.15
Self-Image Visibility, Assertiveness	17.19*	9.14
Self-Image Visibility, Intelligence	15.77*	9.15
Other-Image Visibility, Friendliness	19.89	6.34
Other-Image Visibility, Assertiveness	17.46	6.69
Other-Image Visibility, Intelligence	19.20	7.30

* Computed on the basis of four times actual score (see footnote to Table 2). The universally higher standard deviations of the Self-Image scores (as compared to the Other-Image scores) are substantially attributable to this fourfold multiplication.

this present themselves. Friendliness and Intelligence might be more "submerged" qualities than Assertiveness and thus require longer association or perhaps different circumstances before they can be adequately assessed. On the other hand, they might simply be more complex concepts, not as rigorously defined by the culture, and thus less prone to being agreed upon. In either case, the relative visibility of the content areas would be affected.

Another finding is that mean Self-Image Visibility is at all times higher than Other-Image Visibility. Two possible explanations for this, both of which probably operate, present themselves. The first concerns what Cronbach would call "stereotype accuracy" (8). In general, all three characteristics, Friendliness, Assertiveness and Intelligence, seem to be normatively defined as "good" in this culture. Thus, people generally assume that others will tend to rate themselves high on these factors. This assumption usually proves correct. Thus, a perceiver who used this assumption but had never met the perceived would be more accurate in his prediction of how the perceived would rank himself than of how he would rank others. On the other hand, it is quite possible that people are naturally more concerned with themselves than with others and consequently talk more about themselves. This somewhat egocentric nature would probably be ascribed by many people to the college population which comprised the sample.

The effect of frame of reference of the perceived upon visibility varied with content area. Despite the fact that visibility was generally highest in the Assertiveness area, the mean value of "Self-Image Visibility" in the Intelligence area was lower (high visibility) than the mean value of any other visibility measure used. The most obvious reason for this would be that the aforementioned factor of "stereotype accuracy" is probably most operative and effective in this area. Our own experience would tell us that people

are more sensitive about whether or not they are considered "intelligent" than about whether or not they are thought of as either "friendly" or "assertive." Again, this could be particularly true in the college milieu from which this sample was drawn.

It is possible, although highly improbable, that these findings arise out of group rather than individual differences and consistencies, and that this fact is obscured by the pooling of the sample. If this were true, interpretations of the findings would either remain the same or become extremely difficult.

3. *Visibility and Selected Psychological and Social Interaction Variables*

This last section presents a necessarily tentative first attempt to identify some of the possible determinants and consequences of differential visibility. For this purpose, correlations between the six visibility measures and the previously described psychological and social interaction variables are presented in Table 4.

There are, however, several important problems involved in the interpretation of these findings. Table 5 presents a list of the significant relationships and an analysis of them in terms of the following specific problems:

1. For reasons already described, most significant correlations should be partialled through on the item "Assertiveness."⁴

2. Some of the correlations are of the form $r_{(x-y)x'}$ where x' is the same measure as x but taken independently, on a different form. The extent to which a correlation of this kind is artificially produced is extremely difficult to ascertain.

3. Group rather than individual factors might be responsible for the significant relationships. As a partial check on this possibility, average *within-group* rank-order correlations were found for the significant relationships, using, however, only those subjects who were members of the 18 *complete* five-man groups. It should be noted that still other significant relationships may have been masked by the pooling of the sample. Although masking is regrettable, it is comparatively excusable as it is an error on the side of conservatism and does not threaten the integrity of the relationships which did arise.

⁴ Correlations with peer rankings on the item (not the factor score) Assertiveness were computed for all variables used in this study. Partials were computed for all significant correlations, except for those involving the factor score Assertiveness. All variables mentioned in this study were intercorrelated, but only some of these correlations have been presented. The remainder of the correlation matrix, including the correlations of all items with the item "Assertiveness," may be obtained through correspondence with the author.

TABLE 4
 CORRELATION MATRIX: THE SIX VISIBILITY MEASURES *vs.* SELECTED BEHAVIOR
 AND PERSONALITY SCORES
 (Product-moment correlations, $N = 138$)

Item	Number ^a	Visibility Measures ^b				
		01	02	03	04	05
Composite Scores						
Sociability						
Peer Rankings	13	—.01	.12	.13	.15	.12
Self-Rankings	14	.10	.08	—.03	.07	.20*
Self-Ratings	15	—.01	.11	—.11	.05	.12
Individual Assertiveness						
Peer Rankings	16	—.01	.11	.32*	.25*	.19*
Self-Rankings	17	—.05	.03	.09	.22*	.18*
Self-Ratings	18	.03	.11	.11	.15	.27*
Manifest Intelligence						
Peer Rankings	19	.04	.09	.27*	.13	.19*
Self-Rankings	20	.01	.07	.01	.16	.25*
Self-Ratings	21	—.11	.09	—.11	—.05	.05
Manifest Emotionality						
Peer Rankings	22	—.18*	.01	—.08	.04	—.07
Self-Rankings	23	.05	.01	.15	.08	.16
Self-Ratings	24	.02	—.11	.17*	—.08	.07
Behavior Scores ^b						
Total Number of Acts	25	.06	—.01	.31*	.27*	.22*
Shows Solidarity	26	.00	—.02	.15	.09	.05
Acknowledgment	27	—.08	—.08	.12	.03	.02
Antagonism and Defensive	28	—.03	—.16	.14	.03	.05
Personality Scores ^c						
General Activity	29	.01	.12	—.02	.14	.21*
Restraint	30	—.03	—.02	.03	—.14	—.03
Ascendance	31	—.03	.03	.08	.11	.25*
Sociability	32	.05	.08	.04	.09	.18*
Emotional Stability	33	.08	.10	.03	.09	.06
Objectivity	34	.06	.17*	.05	.23*	.12
Friendliness	35	.02	.04	.03	.10	.02
Thoughtfulness	36	—.05	—.02	.06	—.16	.15
Personal Relations	37	.07	—.02	.11	.03	.04
Masculinity	38	.13	.21*	—.03	.15	.08

* Significant at the .05 level.

^a The Measures are (01) Self-Image Visibility, Friendliness; (02) Other-Image Visibility, Friendliness; (03) Self-Image Visibility, Assertiveness; (04) Other-Image Visibility, Assertiveness; (05) Self-Image Visibility, Intelligence; (06) Other-Image Visibility, Intelligence.

^b Total number of acts initiated in the category.

^c On the 10 factors of the Guilford-Zimmerman Temperament Survey.

"Other-Image Visibility," the more general measure of visibility, was related to several items when taken in the Assertiveness area, but to only two or no items when taken in the other areas. In the Assertiveness area, it is associated with being considered assertive by others, considered assertive by oneself and being active in the group. These are qualities which one

TABLE 5
SIGNIFICANT CORRELATIONS: SIX VISIBILITY MEASURES WITH SELECTED BEHAVIOR
AND PERSONALITY SCORES

	Pooled Sample ^a	Average within Group ^b Correlation
01 Self-Image Visibility, Friendliness		
22 Other Rankings, Manifest Emotionality	-(.18)	-(.03)
02 Other-Image Visibility, Friendliness		
34 GZ6, Objectivity	(.17)*	(.26)
38 GZ10, Masculinity	(.21)	(.25)
03 Self-Image Visibility, Assertiveness		
16 Other Rankings, Individual Assertiveness	(.32)	(.28) *
19 Other Rankings, Manifest Intelligence	(.27)*	(.24)
24 Self-Ratings, Manifest Emotionality	(.17)	(.26)
25 Total Number of Acts Initiated	(.31)	(.20)
04 Other-Image Visibility, Assertiveness		
16 Other Rankings, Individual Assertiveness	(.25)	(.29)
17 Self-Rankings, Individual Assertiveness	(.22)	(.39)
25 Total Number of Acts Initiated	(.27)*	(.20)
33 GZ6, Objectivity	(.23)	(.12)
05 Self-Image Visibility, Intelligence		
14 Self-Rankings, Sociability	(.20)	(.15)
16 Other Rankings, Individual Assertiveness	(.19)	(.32)
17 Self-Rankings, Individual Assertiveness	(.18)	(.20)
18 Self-Ratings, Individual Assertiveness	(.27)	(.25)
19 Other Rankings, Manifest Intelligence	(.19)*	(.25)
20 Self-Rankings, Manifest Intelligence	(.25)**	(.39)
25 Total Number of Acts Initiated	(.22)*	(.22)
29 GZ1, General Activity	(.21)	(.15)
31 GZ3, Ascendance	(.25)	(.26)
32 GZ4, Sociability	(.18)*	(.18)
06 Other-Image Visibility, Intelligence		
None		

^a Significant at the .05 level. Product-moment correlations, $N = 138$.

^b Rank-order correlations, $N = 5$.

* Drop below the level of significance when partialled through on the item "Assertiveness."

** Correlation in form $r(x - \bar{y})x'$ and thus suspect.

would expect to be associated with visibility in general. It is only in the Assertiveness area, however, that these expectations are met consistently, probably because Assertiveness is the only area sufficiently defined so that these overt and seemingly basic items will account for a significant amount of the variance.

If the concept of what constitutes content is somewhat more hazy, it seems, other factors might come into play. In the Friendliness area, two "personality scores" are the only variables which correlate significantly with "Other-Image Visibility." "Objectivity" seems like a logical item with which to

associate visibility, but falls below significance when treated, wherever it appears. The "Masculinity" score is basically composed of items dealing with role-typical behavior, with many of the items falling in the "emotionality" area. The "masculine" person is one who responds in the supposedly "normal" way for males. Thus, his rankings might be expected to approximate the "normal" configuration. Certainly, the rankings of the other four group members should also approach this "normal" configuration, for how else is "normal" defined?

"Self-Image Visibility" in the Intelligence area correlates significantly with several "personality" and "behavior" variables. Included among these are all those from the "Assertiveness" cluster. These findings are in contrast with "Other-Image Visibility" in this area which did not correlate highly with anything, leading to the somewhat troubling conclusion that while people spend a good deal of time and effort trying to impress one another with how intelligent they consider themselves (and it seems that they meet with success in this endeavor), they never bother to communicate their opinions of everyone else. Thus, one never knows if he has succeeded in impressing any of the other group members. Presumably this is a frustrating, and possibly self-perpetuating, situation.

This situation, however, did not prevail in the Assertiveness area. Many of the variables associated with "Self-Image Visibility" were also associated with "Other-Image Visibility." These came primarily from the "Assertiveness" and "Activity" clusters of "behavior" variables, thus indicating some behavioral base beyond the factor of "stereotype accuracy" for visibility.

All the above findings lead to the following overall conceptualization of "what went on" when a perceiver predicted how the perceived would rank the group members. A kind of hierarchy of procedures used by the perceiver emerges. On the most basic level, the perceiver assumes that everyone sees the ordering of the group in the same way that he does, or, as he would term it, "correctly." This ordering is then changed somewhat before being ascribed to the individual by application of the theory that people will tend to rank themselves highly, regardless of their "true" position, on a characteristic normatively defined as "good." Lastly, the perceiver considers the cues which he has received regarding the specific ways in which the perceived's opinion about the ordering differs or agrees with his own. This takes precedence over the other two factors. Thus, when predicting an individual's self-ranking, the perceiver only thinks that this ranking will agree with his own ranking of the person when he himself would rank the perceived highly.

E. SUMMARY

The focus of this paper was the exploration of "visibility" as an operative variable in the interaction situation, where "Visibility" is defined as a property of the perceived and represents the "accuracy" with which the perceived's ranking of the group members on certain qualities was predicted.

The visibility scores were examined in relation to one another and in relation to several other scores which were considered pertinent. These scores came from four sources: (a) The Post-Meeting Behavioral Characteristics Form, Rankings; (b) The Behavioral Characteristics Form, Ratings; (c) An Interaction Process Analysis (as revised by Borgatta) of the discussion sessions; and (d) The Guilford-Zimmerman Temperament Survey. The reported sample consisted of the 138 subjects who successfully completed all of these tasks.

Each of 35 five-person groups, consisting of male college sophomores and juniors, and composed on an *ad hoc* basis, met for one 80-minute discussion session. One of the tests administered at the end of the session was a Perception Test, consisting of three questions which had been selected so as to represent orthogonal content areas. These were called "Friendliness," "Assertiveness," and "Intelligence."

On the basis of this test, each individual received two Visibility scores in each of the three areas. These were (a) "Self-Image Visibility"—the accuracy with which the person's ranking of himself is predicted by the other group members; and (b) "Other-Image Visibility"—the accuracy with which the person's rankings of the other group members are predicted.

The major findings may be summarized as follows:

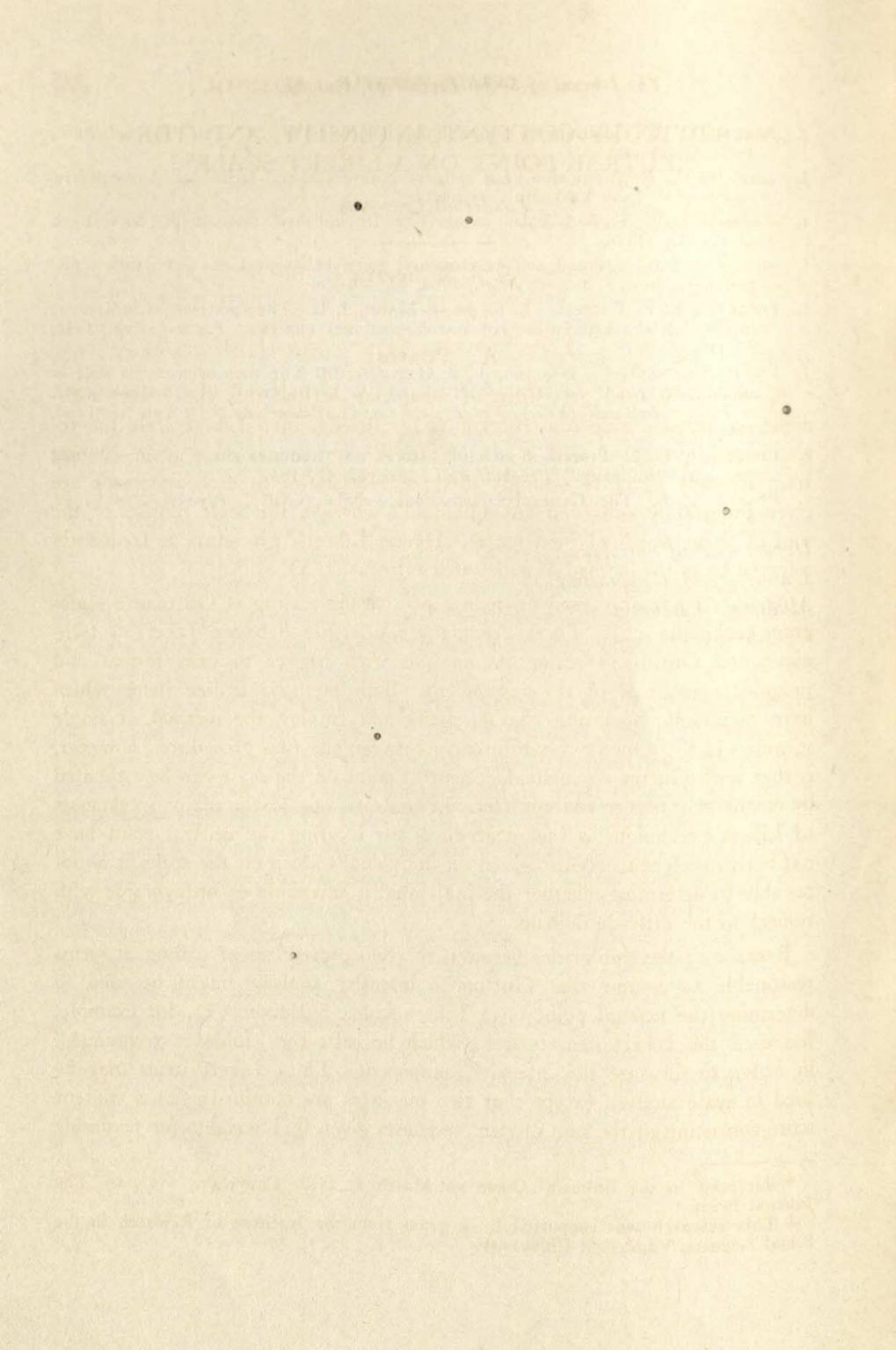
1. There is some general characteristic of "visibleness" that does operate regardless of either content or the frame of reference of the perceived.
2. At the same time, however, both content and frame of reference of the perceived do affect visibility to an important degree. Self-Image Visibility was at all times higher than Other-Image Visibility. As a rule, visibility was greatest in the "Assertiveness" area, and lowest in the "Friendliness" area. Most visible, however, was the Self-Image of "Intelligence."
3. Visibility was generally most highly related to items clustered around some characteristic of assertiveness and activity. The more visible the content area, the greater was the number of these relationships arising.

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ATTITUDE CONTENT, INTENSITY, AND THE NEUTRAL POINT ON A LIKERT SCALE*¹

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A. PURPOSE

A commonly-used procedure of measuring attitudes is the Likert technique of attitude-scale construction (6). Briefly, in a Likert scale the respondent is presented with a set of attitude statements on a scale ranging from strongly agree to strongly disagree. Responses to each statement are given integral weights and an individual's score on the scale consists of the sum of these weighted item scores. Hence, Likert's procedure is frequently referred to as the method of summated ratings (2, 3).

Another commonly used procedure of attitude scaling is Guttman's scalogram technique (5). There are many similarities between Likert's technique and Guttman's scalogram analysis with respect to item format and judgments required of the respondent. Both methods utilize items which have monotonic operating characteristics and employ the method of single stimuli (1, 3). One of the differences between the two procedures, however, is that with Guttman's method, a neutral point on the scale can be estimated by means of intensity analysis (9). In contrast, one of the major weaknesses of Likert's technique is that procedures for locating the neutral point have not been developed. Hence, given an individual's score on the scale, it is not possible to determine whether the individual is favorable or unfavorable with respect to the attitude domain.

Because of the similarities between the two procedures of scaling, it seems reasonable to assume that Guttman's intensity analysis might be used to determine the neutral point on a Likert scale. Suchman (9), for example, has used the Likert item format, which he calls the "foldover technique," in order to measure the intensity component. Thus, Likert items may be used in scale analysis except that two measures are obtained: (a) a content score consisting of the sum of item responses given 0, 1 weights for favorable

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and unfavorable responses, respectively; and (b) disregarding direction of response, an intensity score consisting of the sum of item intensity scores which are given integral weights.

Accordingly, one of the purposes of the present study was to evaluate the feasibility of using intensity analysis to determine a neutral or zero point on a Likert scale. The second purpose of the study was to show empirically that a Likert scale consists of a content score weighted by intensity, i.e., a weighted combination of content and intensity scores.

B. METHOD

1. Subjects

For all phases of this study, the subjects were undergraduate students enrolled in psychology classes at Vanderbilt University.

2. Scale Construction

One hundred and twenty attitude statements pertaining to integration-segregation were administered to 96 subjects. A six-point scale consisting of "strongly agree, agree, mildly agree, mildly disagree, disagree, and strongly disagree" was used. For convenience the phi-coefficient was used as an index of relation between item response and total score, and the 28 items which had the highest correlations were retained. The 28 items were randomly divided into two sets of 14 items each, hereafter referred to as Forms A and B.

3. Procedure

Forms A and B were administered to another sample of 286 subjects, approximately one-half of whom were given Form A first and then Form B; the other half were given Form B first and then Form A. For each of these subjects three measures were obtained on each form: (a) a Likert score consisting of the sum of item responses weighted 1 through 6; (b) a content score consisting of the number of favorable responses, i.e., the sum of item responses weighted 0, 1 for unfavorable and favorable responses, respectively; and (c) an intensity score consisting of the sum of intensity responses weighted 2, 1, and 0, regardless of direction, for "strongly agree," "agree," and "mildly agree" (or "disagree"), respectively.

In accordance with the procedure suggested by Suchman (9), for each form the intensity function was obtained for both Likert and content scores. In order to evaluate the neutral point for Likert scores, absolute deviations from the neutral point for Likert scores as well as for content scores were

obtained on each form for each subject. These four sets of deviation scores were then intercorrelated. The logic underlying this procedure was that the closer the correspondence between the neutral points between forms and between Likert and content scores, the higher the correlation between absolute deviations from the neutral points. In the limiting case, if the neutral points all coincided, the intercorrelations should equal the raw score correlations.

In order to show that a Likert scale consists of content scores weighted by intensity, the plan of the study was to weight content scores with intensity. If the hypothesis has any validity, Likert scores should correlate higher with content scores weighted by intensity than with the unweighted content scores. However, for reasons to be discussed in the next section, no attempt was made to carry out this plan.

C. RESULTS AND DISCUSSION

The range of scores of the two forms for Likert scores was 14 to 84. In order to compare Likert scores with content scores, Likert scores were categorized into 15 class intervals with an interval width of five units. The distributions of these scores are shown in Table 1.

TABLE 1
FREQUENCY DISTRIBUTION OF CONTENT SCORES AND LIKERT SCORES GROUPED INTO
15 CLASS INTERVALS

	Intervals																
	(neg.)		0	1	2	3	4	5	6	7	8	9	10	11	12	13	(pos.)
Content scores A	10	13	14	18	14	18	13	15	15	12	26	18	35	37	28		
Content scores B	19	13	19	16	6	16	10	13	11	4	14	20	34	44	44		
Likert scores A	2	6	8	7	14	26	26	22	20	32	30	32	27	23	11		
Likert scores B	2	5	16	15	16	20	18	21	17	21	25	31	24	34	21		

The intensity functions for Likert and content scores are shown in Figures 1 and 2, respectively. For both sets of functions, note that a neutral point is difficult to locate, and that the results demonstrate more appropriately a *region* of neutrality. Also note that Likert scores tend to result in a smaller region of neutrality. This is reasonable and not unexpected since in the scoring procedure, content scores are independent of intensity whereas Likert scores are not independent of intensity of response. Moreover, the dispersions around these functions were smaller for Likert scores than for content scores.

The intercorrelations between absolute deviations from the neutral point for Likert and content scores are presented in Table 2. Table 2 also shows

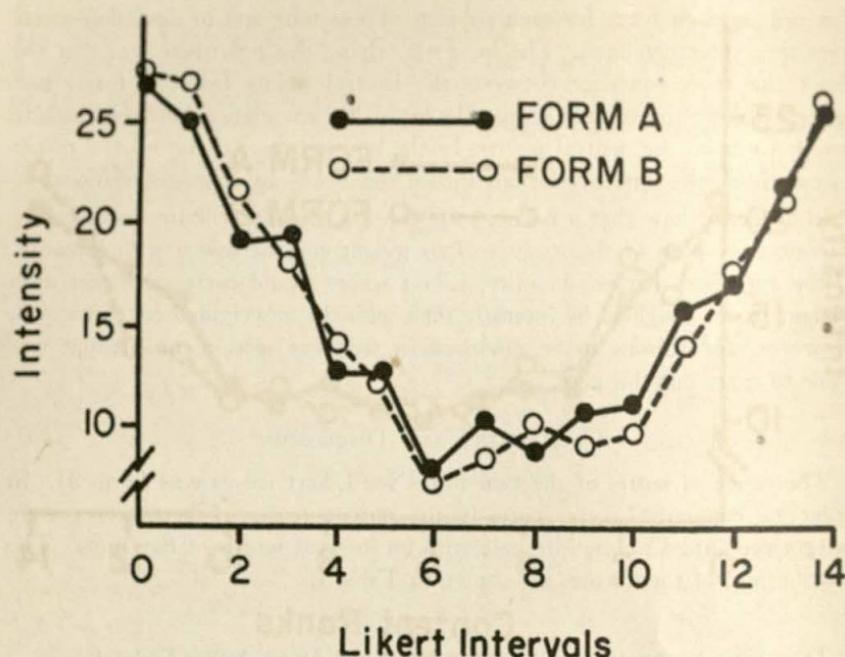


FIGURE 1
INTENSITY SCORES AS A FUNCTION OF LIKERT SCORE INTERVALS

the intercorrelations of raw scores between the two forms for Likert scores and for content scores.

Note in Table 2 that the raw score correlations are consistently higher than the correlations between absolute deviations from the neutral point. One possible reason for this result is that these deviations represent difference scores and difference scores contain two sources of measurement errors; hence, when positively correlated, they are less reliable than a single measure. A second reason is that it may not have been appropriate to take deviations

TABLE 2
INTERCORRELATIONS BETWEEN FORMS A AND B AND BETWEEN CONTENT AND LIKERT SCORES FOR RAW SCORES AND FOR DEVIATIONS FROM THE NEUTRAL POINT*

	Likert B	Content A	Content B
Likert A	.930 (.830)	.956 (.874)	.902 (.716)
Likert B		.908 (.677)	.968 (.836)
Content A			.908 (.646)

* Coefficients are Pearson product-moment correlations. Correlation coefficients for absolute deviations from the neutral point are given in parentheses.

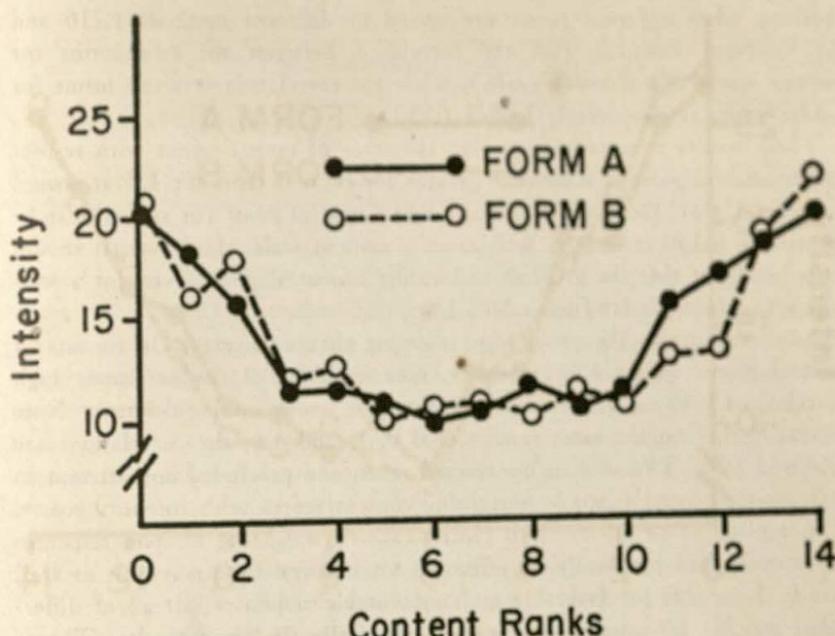


FIGURE 2
INTENSITY SCORES AS A FUNCTION OF CONTENT SCORE RANKS

from the neutral *points* since the intensity functions indicated relatively large neutral *regions*. It is plausible, therefore, that the two forms, although highly correlated, may not be unidimensional. Suchman (9) has postulated that the neutral point is invariant for any subset of items of a scalable universe. For the 28 items consisting of Forms A and B combined, and with dichotomous scoring (agree-disagree), the coefficient of reproducibility was found to be .842. This value does not satisfy one of the criteria of scalability set forth by Guttman and can be interpreted as a quasi-scale, at most. Consequently, this might also account for the lower correlations for deviations from the neutral point.

For the purpose of evaluating the neutral point on a Likert scale, consider in Table 2 the correlations for absolute deviations from the neutral point. The results seem to indicate that there are two sources of error tending to lower these correlations, namely, a source due to differences in method of scoring and a source due to differences in the two forms. The highest correlations are obtained when the *same form* is scored by different methods (.874 and .836). As might be expected, markedly lower correlations are

obtained when *different forms* are scored by different methods (.716 and .677). Note, however, that the correlation between the two forms for content scores is still lower (.646), while the correlation between forms for Likert scores is considerably higher (.830).

These results seem to suggest that the error of measurement with respect to the neutral point is somewhat greater for content than for Likert scores. In general, then, these results indicate that a neutral point (or region) can be located on a Likert scale as well as on a content scale. However, it should be pointed out that the problem of locating a neutral point, even for a scalable set of items, is far from solved (8).

Now, turning to the problem of showing that a Likert scale consists of content scores weighted by intensity, note in Table 2 the extremely high correlations between Likert and content raw scores on both forms. Note especially that on the same form scored 0, 1, and 1-6, the correlations are .968 and .956. This was an unexpected result and precluded any attempt to increase these correlations by weighting content scores with intensity scores. The implication of this result is clear—Likert's weighting of item responses by intensity had practically no effect on total scores. One may just as well give 0, 1 weights for favorable and unfavorable responses instead of differential weights for intensity and obtain practically the same results. This is somewhat analogous to differential weighting of items in prediction studies, e.g., Gulliksen (4) points out that differential weighting of items in terms of their validity coefficients has negligible effects on the validity of the total test.

Since these results have implications not only for measurement and scaling in the attitude domain but for personality measurement as well, supplementary studies were conducted. These studies attempted to generalize these results with respect to (a) effects of number of items in the scale, and (b) effects of attitude content.

With respect to the effects of number of items in the scale, it seems plausible that the effects of weighting item responses would have less effect on scales with a large number of items than on scales with a small number of items. Moreover, it seems reasonable that as the number of items in a scale decreased, the correlation between different forms of the scale would be higher for Likert scores than for content scores.

In order to test this hypothesis, random samples of three items from Forms A and B were selected and, for the same subjects, the two sets of three items were rescored using 0, 1, and 1-6 weights. Table 3 shows intercorrelations of the three-item subscales.

TABLE 3
INTERCORRELATIONS BETWEEN LIKERT AND CONTENT SCORES FOR RANDOM SAMPLES OF
THREE ITEMS FROM FORMS A AND B

	Likert B	Content A	Content B
Likert A	.830	.935	.719
Likert B		.772	.898
Content A			.712

Note that the correlations between weighted and unweighted scores for Forms A and B are .935 and .898, respectively. Compared with the correlations for the 14-item scales (.956 and .968) this is only a slight decrease. This seems to indicate that the negligible effect of weighting item responses is relatively independent of the number of items in the scale. However, note that the correlations between the two subscales are higher for Likert scores than for content scores (.830 and .712). These results suggest that if comparable or parallel forms of a scale consisting of a small number of items are to be used, somewhat better reliability might be obtained if item responses are weighted with intensity of response.

With respect to generalizing this finding to another attitude domain, Forms A and B of Mahler's scales on socialized medicine (7) were administered to a sample of 84 subjects. Using the same six-point response scale described previously, weighted Likert scores and unweighted content scores were correlated. The correlations for Forms A and B were .922 and .941, respectively. Hence, there is further evidence that weighting of item responses by intensity has negligible effects on total score.

D. SUMMARY

The purpose of this study was to show (a) the feasibility of locating a neutral point or region on a Likert scale using a modification of Guttman's intensity analysis, and (b) that a Likert scale consists of a content score weighted by intensity. Two forms of an attitude scale with a Likert item format were constructed and administered to a sample of undergraduate college students. The scales were scored using 0, 1 item weights and using the conventional Likert weighting of item responses. A separate intensity score was also obtained. A comparison of these measures resulted in the following conclusions:

1. It is possible to determine a neutral *region* on a Likert scale, but because of the quasi-scale characteristic of the instrument used no neutral *point* could be clearly delineated.
2. Weighting content scores by intensity, as is done in the Likert method,

versus a simple dichotomous content score has no significant effect on the total score. However, the data do suggest that there is some advantage to a Likert-type weighting if the number of items is small.

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RELATIONSHIPS AMONG ANXIETY AND SELF, TYPICAL PEER, AND IDEAL PERCEPTS IN COLLEGE WOMEN^{*}!

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A. INTRODUCTION

In diagnosis, therapy, or even vocational guidance, the clinical psychologist is confronted regularly with the client's anxiety about whether this or that behavior, interest, or feeling is different from that of his peers. The psychologist, in his own mind, is frequently assessing the very same thing about the client. A great deal of research has been done relating the discrepancy between the self concept and the ideal concept to personality variables (e.g., 1, 8, 14). While some studies are relevant to the problem (11, 12), the writers know of no studies dealing directly with the relationship of self-typical peer discrepancy to independent personality measures. The major purposes of the present study were to explore the extent to which perceptions of self and typical peer differ among college women; the relationship of this discrepancy measure to self-ideal self, and typical peer-ideal self discrepancy measures; and the relationships of these three measures to each other and to anxiety.

An attempt was made to take into account some of the criticisms in the literature applicable to many previous studies using discrepancy scores. Thus, in addition to measuring discrepancies *globally*, i.e., item-by-item and without regard for content or direction of discrepancy, another kind of discrepancy measure was also used. This second type of discrepancy was *trait-specific*, i.e., it took into account the nature and direction of the discrepancy along two dimensions: Dominance minus Submission (Dom) and Love minus Hate (Lov). Using trait-specific measures in addition to global ones reduces both the risk of a significant relationship being obscured by being mingled with others that are unimportant, and the risk of interpreting a significant finding on a discrepancy measure in an overgeneralized way (5). The study also attempts to avoid the pitfall of attributing a personality correlate to a trait discrepancy score when it can be attributed with more parsimony to a *non-discrepancy* score when it can be attributed with more parsimony to a *non-*

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discrepancy trait score (5). Thus, the basic scores for self, typical peer, and ideal self were correlated with anxiety in their own right, in addition to correlating the discrepancies among them with anxiety. An effort was made, albeit not by Edward's (6, 7) much more refined techniques, to increase the power of the basic global discrepancy measure by adding one that employed weights based partially on the social acceptability of the items. And, finally, possible distortion due to acquiescent response set (3, 4) or "yes-saying" (2) was assessed.

The primary specific questions to which the study addressed itself were
(a) To what extent, and in what way, do the percepts of self, typical peer, and ideal self differ from one another on the dimensions of Dom and Lov?
(b) To what extent do global or Dom and Lov discrepancies among these percepts correlate with anxiety? (c) To what extent do each of the percepts, aside from discrepancies among them, correlate with anxiety?

B. METHOD

Three undergraduate classes in Introductory Psychology at Douglass College, the women's college of Rutgers, The State University, provided the 77 Ss for the study.

The Taylor Manifest Anxiety Scale, or TMAS (13), was the measure of anxiety. The Interpersonal Check List, or ICL (9, 10), provided the global discrepancy scores and the Dom and Lov scores. The TMAS and the ICL were administered with standard instructions. The former preceded the latter by five weeks. The students had been in class together for nine weeks at the time the ICL was administered.

In an attempt to minimize concern and maximize frankness, the Ss were told that the purpose of the study was to "determine the adjectives that best describe college students in an interpersonal context," and that while names were requested for record-keeping purposes, the researchers were interested in group results rather than any individual's answers. They were asked to check the ICL first as descriptive of themselves, then as descriptive of their typical classmate (the operational definition of Typical Peer in this study), and finally as descriptive of their ideal self. They proceeded from one series to the next at their own pace.

Dom and Lov for the Self, Typical Peer, and Ideal scores were calculated from the ICL descriptions of each S by the usual formulas (10, p. 69). The Typical Peer scores were subtracted from the appropriate Self scores to obtain an individual's Self-Typical Peer Dom, and Self-Typical Peer Lov discrep-

ancy scores. The Ideal score was similarly subtracted from the appropriate Self score to obtain Self-Ideal Dom and Self-Ideal Lov discrepancy scores. Typical Peer-Ideal discrepancy scores for Dom and Lov were obtained by subtracting an individual's Ideal scores from her Typical Peer scores on these variables. Signs were always taken into account.

Two measures of global discrepancy were used and simultaneously analyzed. The first, the Global Raw Discrepancy measure, was simply a count of the number of discrepancies between one set of checkings on an individual's ICL with another set. In the second, or Global Weighted Discrepancy measure, each discrepancy found was multiplied one to four times according to the intensity weight of the particular ICL item involved. According to Leary, these weights reflect psychologists' judgments as to how a particular item would be seen by Ss along a three-point scale of "good-neutral-bad," and consideration of the actual frequency with which the descriptive adjective was checked by Ss (10, p. 456 ff.). Thus, the weighting was influenced to some extent by a kind of Social Desirability: the "admission" of a discrepancy on a less socially acceptable item being more heavily weighted than a discrepancy on a more socially acceptable item.

The method used to assess acquiescent response set or "yes-saying" was summing the number of items checked on ratings of Self, Typical Peer, and Ideal.

The .05 level of confidence, on a two-tailed test, was the criteria of significance employed throughout the study.

C. RESULTS

1. *Raw Versus Weighted Global Discrepancy Measures*

Scores derived from these two methods were very highly correlated (+.96, +.97, and +.98). And, they did not yield notably different results in correlating with anxiety. Therefore, only the more simply computed Global Raw Discrepancy Measure will be presented and discussed below.

2. *Yes-Saying*

The number of items checked for Self, Typical Peer, and Ideal correlated +.15 with anxiety, which is not statistically significant. Nor was there a very high correlation between any of the ICL measures and number of items checked: correlations ranged from .00 to +.25, and averaged +.13.

3. *Relationships Among Self, Typical Peer, and Ideal Percepts*

As shown in the significant correlations in Table 1, those who saw themselves as being greater in Dom tended to picture their Ideal as high in Dom.

Those who saw themselves as high in Lov tended to picture their Ideal as high in both Dom and Lov, and to see their Typical Peer as high in Dom. All Dom and Lov measures on the same percept correlated negligibly with each other. (Typical Peer percept is the only one presented here.)

TABLE 1
CORRELATIONS AMONG SELF, TYPICAL PEER, AND IDEAL MEASURES

Variables	Dom		Lov	
	Typical peer	Ideal	Typical peer	Ideal
Dom				
Self	+.07	+.35**	+.06	-.05
Typical peer	—	+.17	+.08	+.20
Lov				
Self	+.27*	+.24*	-.02	+.53**
Typical peer	+.08	-.14	—	.00

* $p < .05$.

** $p < .01$.

As shown in Table 2, the average percept of Self, Typical Peer, and Ideal all differed from one another significantly in terms of both Dom and Lov. The Ideal received the highest mean scores on both Dom and Lov. In degree of Lov, the Self is seen as coming closer to the Ideal than the Typical Peer.

TABLE 2
MEANS, STANDARD DEVIATIONS, AND DIFFERENCES FOR SELF, TYPICAL PEER,
AND IDEAL MEASURES

Variable	Mean	SD	Comparison of differences		
			Diff.	t	
Dom					
Self	+2.1	6.0	Self-Typical peer	1.8	2.2* *
Typical peer	+3.9*	4.6	Self-Ideal	7.1	10.7**
Ideal	+9.2	2.8	Typical peer-Ideal	5.3	9.2**
Lov					
Self	+2.9	5.9	Self-Typical peer	3.6	4.2**
Typical peer	— .7	5.1	Self-Ideal	2.9	4.9**
Ideal	+5.8	4.5	Typical peer-Ideal	6.5	8.4**

* $p < .05$.

** $p < .01$.

This is reversed with respect to Dom, where the Typical Peer is seen as coming closer to the Ideal than the Self. Note also that the variability is greatest for the Self measure and lowest for the Ideal measure.

4. Relationship of Discrepancy Measures to Anxiety

As shown in Table 3, Self-Typical Peer discrepancy correlated with anxiety in each area: Dom, Lov, and Global scores. Self-Ideal discrepancy correlated with anxiety on the Dom and Global scores, but did not in the case of Lov. Typical Peer-Ideal discrepancy correlated significantly with anxiety for Lov, but not for Global and Dom discrepancies.

TABLE 3
CORRELATIONS OF DISCREPANCY MEASURES WITH ANXIETY MEASURE

Area of discrepancy	Correlations of Anxiety with:		
	Self-Typical peer discrepancy	Self-Ideal discrepancy	Typical peer-Ideal discrepancy
Global	+.26 ^a	+.46 ^c	+.16
Dom	-.34 ^b	-.44 ^c	-.01
Lov	+.24 ^a	+.12	-.22 ^b

^a < .05.

^b < .01.

^c < .001.

5. Relationships of Self, Typical Peer, and Ideal Percepts to Discrepancy Measures

As may be seen in examination of the magnitude (independent of sign) of the correlations in Table 4, the two variables entering into a discrepancy score did not usually influence the discrepancy score equally. For both Dom and Lov discrepancy scores, Self scores had a greater role in determining the discrepancy score in which it was involved than did an Ideal or a Typical Peer score. When Typical Peer score and Ideal score were the elements of a discrepancy score, the Typical Peer score contributed more than the Ideal. This is as one would expect, since the variability for Self, Typical Peer, and Ideal descended in that order. In the case of Global discrepancy scores, correlations are, of course, lower. Here, perception of Typical Peer is more predictive of discrepancy scores in which it is involved than either Self percept or Ideal percept. Self Dom percept has a fairly high correlation with Global Ideal discrepancy, but this is not so for Self Lov, Ideal Dom and Lov scores do not correlate significantly with Global discrepancy scores.

6. Relationship of Self, Typical Peer, and Ideal Percepts to Anxiety

Table 5 reveals a significant correlation between anxiety and Self percept on the dimension of Dom. The more the *S* saw herself as Dom, the less she tended to be anxious. Neither Ideal nor Typical Peer percepts for Dom or

TABLE 4
CORRELATIONS OF NON-DISCREPANCY WITH DISCREPANCY MEASURES

Non- Discrepancy Measures	Discrepancy Measures			Global		
	Dom and Lov	Typical peer-Ideal	Self-Typical peer	Self-Ideal	Self-Typical peer	Typical peer-Ideal
<i>Dom</i>						
Self	+.78**	+.86**	—	-.13	-.61**	—
Typical peer	-.55**	—	+.82**	-.30*	—	-.08
Ideal	—	-.13	-.42**	—	-.05	+.11
<i>Lov</i>						
Self	+.74**	+.63**	—	+.01	-.07	—
Typical peer	-.67**	—	+.68**	-.38**	—	-.49**
Ideal	—	-.31*	-.62**	—	+.11	+.13

* $p < .05$.

** $p < .01$.

Lov were correlated significantly with anxiety; although the Typical Peer percept missed significance by a .006 margin.

D. DISCUSSION

From a methodological point of view, the results suggest that in studies of this type employing the ICL, the considerable extra effort of weighting discrepancies between items according to their intensity weighting is not

TABLE 5
CORRELATIONS OF NON-DISCREPANCY MEASURES WITH ANXIETY MEASURE

Measure	Correlations with Anxiety
Dom	
Self	-.34*
Typical peer	+.05
Ideal	+.10
Lov	
Self	+.15
Typical peer	-.21
Ideal	+.03

* $p < .01$.

likely to be rewarded by results substantially different from simply counting the number of discrepancies. The findings of this study offer confirmation that Dom and Lov scores are independent measures (10). Also, acquiescent response set does not seem strongly to influence scores on the ICL. At any rate,

it is safe to conclude that in this particular study any relationships found between the major variables and anxiety are not seriously contaminated by acquiescent response set or "yes-saying."

The results also indicate that, as a group, the assessments college women make of themselves, their typical peer, and their ideal are clearly different each from the other, and further, that the ICL is a sensitive-enough instrument to measure such differences along dimensions of Dom and Lov. The average Ideal of college women is characterized by greater Lov than either the Typical Peer or the Self; i.e., more agreeableness, fondness toward others, kindness, generosity, sympathy, as opposed to criticalness, selfishness, unfriendliness, or strictness. The Ideal is also characterized by more Dom than either the Typical Peer or the Self; i.e., by more managing of others, bossiness, liking responsibility, as opposed to being shy, timid, or passive. The former finding is hardly surprising, but one wonders if the Ideal would be quite so characterized by Dom among noncollege women of the same age.

On the average, the Self concept of college women comes closer to the Ideal in Lov than does the concept of the Typical Peer. One immediately thinks in terms of self-enhancing ego mechanisms or projection mechanisms to account for this better showing of the Self than the Typical Peer. But these seem insufficient explanations of the results of the present study, in view of the fact that the opposite relationship exists for Dom. On this variable the women, as a group, saw the Typical Peer as more closely resembling the Ideal than did the Self. The fact that the Self is closer to the Ideal for Lov, while the Typical Peer is closer for Dom, plus the consideration that college life is probably seen as requiring more Dom, but not more Lov, than the previous milieu of these students, gives rise to an hypothesis that seems worthy of independent investigation. Perhaps when new age or group mores and pressures are brought to bear on an individual, the average individual (who in reality is adapting to demands no better or worse than others) sees himself as *not* fulfilling the new role as adequately as others. A reasonable explanation for such a phenomenon could exist in the fact that many individuals may consciously force themselves to play-act the new, desirable role (say greater dominance) and convince others that they are characteristically dominant, while the actors themselves feel they are not *really* that way. They "fool" others, but not themselves, in the process of learning the new role. Each, therefore, makes the others feel more inferior by comparison than they realistically should feel. Verification of an hypothesis that one's view of one's peers tends to move unrealistically in the direction of newfound ideals would

help explain just why adjustment to a new social milieu can incite the self-doubt and loss of confidence that it often does.

The correlations of the IGL discrepancy scores and the TMAS scores indicate that the greater the global difference perceived by a college woman between herself and her peers, the greater her anxiety. Similarly, the greater the global discrepancy she perceived between herself and her ideal self, the more she tends to be anxious.

Can these findings be accounted for in terms of trait-specific variables? They cannot in the sense of finding a trait-specific variable that is highly correlated with the global measures. Correlations between global and trait-specific discrepancy measures (not reported in the results) were mainly on the order of +.06. If the analysis stopped at a global level, however, an illuminating finding would not have been revealed: namely, that Self-Typical Peer discrepancy on the dimension of *Dom* correlates more highly with anxiety than does the *global* discrepancy between Self and Typical Peer. The trait-specific measures of Lov Self-Typical Peer discrepancy and Dom Self-Ideal discrepancy correlate with anxiety to about the same extent as the corresponding global measures. The trait-specific discrepancy measures, therefore, are not measuring exactly the same thing as the global measures, but neither does their use bring a loss of power to predict anxiety. In fact, in one instance, a trait-specific discrepancy measure (Lov Typical Peer-Ideal discrepancy) correlated significantly with anxiety, while the global Typical Peer-Ideal discrepancy failed to reach significance.

The trait-specific discrepancy correlations then, indicate that: (a) the more the college woman tends to see herself as characterized by *Dom* relative to her typical peer, the less her tendency toward anxiety; (b) the less she sees her typical peer as being characterized by *Lov* relative to herself, the more she tends to be anxious; and (c) the less she sees her typical peer as characterized by *Lov* relative to her ideal, the more she tends to be anxious.

The trait-specific measures are, of course, correlated with the discrepancy measures of which they are a part (Table 4). The trait-specific discrepancy measures represent second-degree relationships. Cronbach maintains "... a second-degree relationship is justified only if it improves significantly on simpler predictions" (5, p. 356). A comparison of Tables 3 and 5 reveals that with the exception of Dom Self-Ideal discrepancy, two *simple* scores—Self Dom and Typical Peer Lov—correlate about as highly with anxiety as do any trait-specific *discrepancy* measures. The relationships which seem to lie at the base of the findings, then, or at least provide the most specific kind of information, are (a) the more a college woman tends to see herself

as characterized by Dom, the less she tends to be anxious, and (b) the less she tends to see her typical peer as characterized by Lov, the more she tends to be anxious. (Self Dom and Typical Peer Lov are independent measures; the correlation between them being only +.06.)

E. SUMMARY

Seventy-seven college women took the Taylor Manifest Anxiety Scale and described their Self, Typical Peer, and Ideal on the Interpersonal Check List. The Ideal was highest in both Dom and Lov. The Self came closer to the Ideal in Lov, while the Typical Peer came closer in Dom; this gave rise to an hypothesis that percepts of one's Typical Peer move unrealistically in the direction of newfound social values. Significant correlations with anxiety were found for:

1. Discrepancy between the Self and Typical Peer as measured (a) globally, (b) on Dom, and (c) on Lov.
2. Discrepancy between Self and Ideal measured (a) globally, and (b) on Dom.
3. Discrepancy between Typical Peer and Ideal measured on Lov.

Two of the components of the Dom and Lov discrepancy measures (Self Dom and Typical Peer Lov) correlated with anxiety not greatly less than the more complex measures, and were independent of each other. The findings with these measures indicated (a) the more a college woman saw herself as characterized by Dom, the less she tended to be anxious, and (b) the less she saw her Typical Peer as characterized by Lov, the more she tended to be anxious. Weighting global discrepancy measures in an attempt to take social acceptability of items into account did not materially affect the results; nor did acquiescent response set.

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EFFECTS OF ORDER OF EVIDENCE ON SOCIAL INFLUENCES ON JUDGMENT*

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A. INTRODUCTION

Our previous investigations of social influences on judgment usually utilized only one direction of ordering the stimuli, i.e., in experiments with a series of pairs of line segments, a series of pairs of paragraphs, and a series of pairs of pictures, the smallest difference between the members of the pair was given first, with the difference between the members increasing in successive pairs. The series therefore provided increasingly clearer evidence on which to base a judgment. When social influences were introduced to bring about nonveridical judgments, in many experimental variations the frequencies of such judgments tended to decrease monotonically as the evidence became clearer. What would happen to the efficacy of these social influences if the series of pairs of lines was presented in the reverse order? Now the evidence was first very clear-cut and in successive pairs became less clear.

B. PROCEDURE AND SUBJECTS

The material to be judged consisted of a series of five cards. Each card contained a drawing of a square which had two line segments radiating out of it at different angles. In each card one line segment was one inch long and the other was $15/16$, $14/16$, $12/16$, $10/16$, and $8/16$ of an inch in Cards 1 through 5, respectively. The experiment was introduced as a test of visual acuity that was part of a new intelligence test being standardized by the psychology department. The instructions were to select the shorter line in each card and not to include the sides of the square as parts of the line. [See Luchins (7, p. 97) for pictures of the cards and more detailed instructions.]

In previous experiments these cards had been presented, from Cards 1 through 5. Now the order of presentation was reversed so that Cards 5, 4, 3, 2, and 1 were given. Whereas in the previous experiments the difference

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between the pairs of lines increased throughout the series, now the difference decreased.

There were 10 subjects (college students) in each variation. The experimenter asked that judgments be called out so that he could hear them in order to record them. The experimental variations were administered to two individuals at a time; one of them was a naive subject and the other a pre-instructed college student who served as the experimenter's confederate. The confederate responded aloud to each card before it was handed to the subject to judge. Thus, the subject overheard the confederate's judgment before he saw the card. Control subjects were tested alone.

The present procedures differed from those described in detail in a previous report (7) only with regard to the reversal in the order of presentation of the cards. The present procedures may be summarized in terms of the steps (to be described below) used in each. Step 1 was used in Experiment I, Steps 1 and 2 in Experiment II, Steps 1, 2, and 3 in Experiment III, and Steps 1, 2, and 4 in Experiment IV.

Step 1. The confederate gave incorrect choices, i.e., consistently selected the longer line although the assigned task was to select the shorter one.

Step 2. Incorrect choices were called right by the experimenter, with the evaluation made after the confederate and subjects had both responded to a card and before the next card was presented.

Step 3. The series of cards was successively readministered to both the confederate and subject, as in Step 2, until the subject gave false judgments (answers evaluated as right by the experimenter) to all five cards in a trial or until a maximum of three trials with the five cards. A challenge to get 100 per cent was given by the experimenter before each readministration.

Step 4. Prior to the five cards, a foretraining series of 20 cards was used in which the line segments of each pair were equal in length. Whatever line happened to be selected by the confederate was called right by the experimenter. The foretraining series of cards was repeatedly administered until the subject gave answers evaluated as right by the experimenter to all 20 cards, or until a maximum of three readministrations, after which the five cards were given, as in Step 2.

Experiments V through VIII were the counterparts of Experiments I through IV respectively, with the exception that the confederate consistently gave correct responses, i.e., selected the objectively shorter line in the five cards. The experimenter evaluated the confederate's correct responses as wrong and his incorrect responses as right. As in Experiments II-IV the subject was called right only when he gave a false judgment. In Experiment

VIII whatever line was selected by the confederate in the foretraining series was called wrong by the experimenter.

C. ^eEXPECTATIONS

Experimentation with various kinds of stimulus material (7, 8, 10, 11, 12, 13, 14, 15) has suggested the following hypotheses, under the customary assumption that all other things are equal. For descriptions and discussion of such terms as *structured* and *ambiguous*, see Koffka (6) and Luchins (9).

Hypothesis E (evidence). The clearer, the less ambiguous, or the better structured the judgment object, the less likely it is that extrinsic social forces will influence judgments of it.

Hypothesis D (disparity). The greater the disparity or conflict between the information that an individual gets from a judgment object and the initial information he gets from a social source, the less likely is he in this of successive similar judgment situations, to accept information offered by the same social source.

Both hypotheses may be regarded as predicated on the assumption that the sharper the (initial) discrepancy between the social influence and the evidence, the more likely the subject will realize that the social source is wrong; therefore, he is more likely to reject it and to be evidence-oriented.

Although there are indications that these hypotheses are not universal in their applicability, that they do not hold under all conditions or for all kinds of judgment objects (*cf.* 11, 16, 17) let us assume that they hold, at least approximately, for the present experimental conditions, in order to see to what expectations they lead. Hypothesis E implies that, as the stimulus material becomes clearer, the social forces that foster nonveridical judgments would be less influential. It therefore suggests that in the usual order, false judgments would decrease, or at least not increase. Monotonic decrease of false judgments is what we found for the usual order. For the reverse order, since the evidence becomes less clear-cut, Hypothesis E implies increasing efficacy of the social forces and therefore leads to the expectation that false judgments would increase or at least not decrease for the reverse order.

We are also interested in comparing the usual and the reverse order with reference to the frequencies of false judgments to a given stimulus card. Since the same stimulus card is involved, the judgment object may be considered invariant for the comparison, and therefore Hypothesis E is not directly applicable. However, Hypothesis D does seem applicable since most of the present experiments involve disparity between information from differ-

ent sources. The information that the drawing on the card offers is in conflict with the information that the subject obtains when he overhears someone else give an incorrect response or when he hears the experimenter describe the correct response as "wrong" and the incorrect one as "right." In other words, there is a discrepancy between the information from the object of judgment (what one sees) and information from the social sources (what one hears). This conflict may be considered as greater when the judgment object is clearer, e.g., the conflict may be said to be greater when it involves Card 5 (where the line segments differ in length by 1/2 of an inch) than when it involves Card 1 (where they differ by only 1/16 of an inch). Since the reverse order begins with the presumably greater disparity, Hypothesis D suggests that for a given card the reverse series would yield less or at least no more false judgments than the usual series.

Finally, we are interested in comparing the reverse and the usual series with reference to the frequency of false judgments obtained in a given serial position, even though such a comparison involves different stimulus cards. For example, the first serial position was held by Card 1 in the usual series and by Card 5 in the reverse series, the second serial position by Card 2 in the usual series and by Card 4 in the reverse series, the third serial position by Card 3 in both series, etc. Since different stimulus cards may be involved in a comparison, Hypothesis E may be invoked. Moreover, since the two orders of presentation are compared, Hypothesis D is applicable. One should keep in mind that in the first two serial positions, the reverse order had the clearer evidence; in the third position both the usual and the reverse orders had the same evidence (Card 3), and in the last two serial positions it was the usual series that had the clearer evidence. Thus, the relative clarity of the evidence given in each series was interchanged between the first and fifth position. The evidence factor, as a force for veridical judgments, favored the reverse order in the first two positions but the usual order in the last two positions. Hence, Hypothesis E suggests that the reverse order would have less false judgments than the usual order for the first and second positions but more than the usual order for the fourth and fifth positions. Graphically, with the serial positions plotted against the frequencies of false judgments, the expectation from Hypothesis E is that the relative positions of the graphs of the two series would be interchanged between the first and last serial positions.

Hypothesis D implies that, since the disparity between the initial evidence and the social source was greater for the reverse series, the disparity-factor, as a force for veridical judgments, was stronger for the reverse series. In the first two serial positions both the disparity-factor and the factor of clarity

of evidence favored more veridical judgments for the reverse series. However, in the last two serial positions, although the disparity-factor operated in the same direction as before, the evidence-factor operated in an opposing direction. Thus the effect of the evidence-factor was reinforced by the disparity-factor in the first two serial positions, but counteracted by it in the last two positions. Taking both hypotheses into account, we are therefore led to the following predictions. In the first two serial positions the usual order would have considerably more false judgments than the reverse order (evidence-factor and disparity-factor favored veridical judgments for the reverse order). In the third serial position the usual order would have somewhat more false judgments than the reverse order (evidence-factor equal and disparity-factor favored reverse order). What would happen in the last two positions (where the evidence-factor favored the usual order and the disparity-factor favored the reverse order) would depend on the relative strength of the two factors. Depending on whether the evidence-factor was equal to, weaker than, or stronger than the disparity-factor, the reverse order would have the same, fewer, or more false judgments than the usual order. When both hypotheses are taken into account, one expectation is that if frequencies of false judgments were graphed against serial positions, then the relative positions of the graphs of the two series would be interchanged between the first and last serial positions.

Another way of describing the expectations is to consider the differences obtained when, from the percentages of false judgment that the usual order yielded for a given serial position, there was subtracted the corresponding percentage that the reverse order yielded. Hypothesis E suggests that such differences would be positive numbers for the first two serial positions (where the reverse order has the clearer evidence) but negative numbers for the last two serial positions (where the usual order has the clearer evidence) and zero for the third serial position (where both series have the same stimulus). Moreover, it suggests that the differences would constitute a decreasing or monotonically decreasing sequence from the first through the fifth serial position and, in particular, that the difference for the first serial position would be larger than for the last position.

The expectations given in the last sentence remain unchanged if Hypothesis D is also considered. This hypothesis suggests that if the disparity-factor is taken into account then the absolute values of the differences in false judgments would be greater for the first three serial positions and less for the last two than if only the clarity of the evidence was taken into account. In other words, the disparity-factor, taken in conjunction with the evidence-

factor, might be expected to widen the gap between the two series in the first three positions and to narrow it in the last two positions. Taking both hypotheses into account, we might expect that the differences would constitute a monotonically decreasing sequence and that the first three differences would be positive. Whether the last two would be positive numbers or zero or negative numbers would depend on the relative strength of the two factors, with negative numbers indicating that the evidence-factor outweighed the disparity-factor.

D. RESULTS

Table 1 presents, for the various experiments, the percentage of false judgments in each of the five cards as well as the mean for the five cards and the mean for the last four cards. The latter mean is presented because in some variations the experimenter's evaluation could not have influenced responses to the first of the five cards. In Experiments III and VII, where there were successive trials with the five cards, the table gives results of the last trial. For purposes of comparison, the table also contains, for each experimental procedure, the percentages of false judgments obtained with college subjects when the cards were presented in the usual order. These subjects were students at the same college as the subjects who received the cards in the reverse order.

It is important to keep in mind that Table 1 contains the percentage of false judgments for a given card, irrespective of the order in which it was received. For example, Card 1, the card on which the two line segments differed by $1/16$ of an inch, was the first card in the usual order of presentation but the fifth card in the reverse order.

Not contained in the table are the results for 20 control subjects, half of whom received the cards in the reverse order and the others in the usual order. Tested individually, without a confederate and without evaluations by the experimenter, control group subjects consistently gave correct responses regardless of the order in which they received the cards.

In the usual order, the procedures that involved successive trials on the foretraining cards or on Cards 1-5 yielded relatively more false judgments than the other procedures. This also proved to be the case for the reverse order. In other words, for each order of presentation, Experiments III and IV had more false judgments than Experiments I and II, Experiments VII and VIII had more false judgments than Experiments V and VI. These findings suggest that the extent of veridical judgments was a function of the particular experimental procedure.

Table 1 shows that, for the usual order of presentation, frequencies of false judgments decreased monotonically from Card 1 to Card 5. To see what happened in the reverse series, read Table 1 from right to left, i.e., from Card 5 to Card 1. The expectation derived from Hypothesis E was that for the reverse order false judgments would increase monotonically. Table 1 reveals that this was the case in every experiment except Experiment I. Moreover, in accordance with expectations, in all experiments false judgments were never less frequent for the last card than for the first card of the reverse order. In fact, for seven of the eight variations, they were more frequent for the last card; the exception was Experiment V, where no false judgments at all were obtained. Thus, on the whole, the results are in keeping with expectations suggested by Hypothesis E and to this extent support this hypothesis.

Let us now compare the percentages of false judgments to a given stimulus card under the two orders of presentation. Table 1 shows that the two orders yielded the same results in each of Experiments V and VI, but different results in the remaining variations. The expectation suggested by Hypothesis D was that for a given card the frequency of false judgments in the reverse order would be smaller or at least not greater than in the usual order. This turned out to be the case for every card in every experiment with the exception of Experiment I, where it did not hold in three cards.

If we do not consider the two variations where the reverse order yielded the same results as the usual order, then we find that of the 30 remaining cases (five cards in each of the six remaining variations) the reverse order yielded relatively fewer false judgments than the usual order in 23 cases, constituting 77 per cent of the 30 cases. The reverse order yielded relatively more false judgments in three cases (all in Experiment I) constituting 10 per cent of the cases. It yielded the same percentage of false judgments in four cases, constituting 13 per cent of the cases. Thus, reversal of the order of presentation of the series tended, on the whole, to make for fewer false judgments for a given stimulus card. This trend is reflected in the means for all five cards as well as in the means for the last four cards. With the exception of Experiment I, the means for the reverse series were as small as, or smaller than, the corresponding means for the usual order. The most striking difference occurred in Experiments VII and VIII, where the means of false judgments for the reverse order were from 20 to 28 per cent less than the corresponding means for the usual order. Hence the results, on the whole, are in accord with expectations and to this extent support Hypothesis D.

Finally we compare the results for a given serial position in the two

TABLE 1
PERCENTAGES OF FALSE JUDGMENTS OF EACH STIMULUS CARD

Experiment	Communication	Procedure	Order of presentation	Ss						Means	
					1	2	3	4	5	All 5	Last 4
I	incorrect	no verdict	reverse	10	40	0	10	20	10	16	10
			usual	15	20	13	13	0	0	9	7
II	incorrect	called right	reverse	10	20	0	0	0	0	4	0
			usual	15	33	7	7	7	7	12	7
III	incorrect	successive trials, called right	reverse	10	40	20	20	20	20	24	20
			usual	15	60	33	20	20	20	31	23
IV	incorrect	foretraining, called right	reverse	10	40	20	20	20	20	24	20
			usual	15	47	33	27	27	27	32	29
V	correct	no verdict	reverse	10	0	0	0	0	0	0	0
			usual	10	0	0	0	0	0	0	0
VI	correct	called wrong	reverse	10	20	0	0	0	0	4	0
			usual	10	20	0	0	0	0	4	0
VII	correct	successive trials, called wrong	reverse	10	30	20	20	20	10	20	14
			usual	10	60	60	40	20	20	40	35
VIII	correct	foretraining, called wrong	reverse	10	20	10	10	10	10	12	10
			usual	10	60	40	40	40	20	40	35

presentations, e.g., the first position, held by Card 1 in the usual order and by Card 5 in the reverse order. Here the serial position is held invariant for a given comparison while the nature of the stimulus card is allowed to vary in contrast to the comparisons of the previous paragraphs, where the stimulus card was held invariant while the serial position of the card was allowed to vary.

For Experiment V there were no false judgments in either series. For each of the remaining experiments we plotted the graphs of the two series on the same set of axes, with the serial positions on the abscissa and the frequencies of false judgments on the ordinate. A graph was then obtained for each series by connecting the plotted points so that a continuous curve was formed (graphs not shown). In accordance with expectations, in each case (i.e., for each of the seven experiments whose data were plotted) the graphs of the two series met or crossed, so that the relative positions of the two curves were interchanged between the first and fifth positions. In each case the reverse order was below the usual order for the first serial position but above it for the last serial position. This indicates that the reverse series had relatively less false judgments than the usual series in the first serial position but relatively more than the usual series in the last serial position.

These findings attest to the power of the evidence, since the most clear-cut evidence (Card 5) gave less false judgments than the least clear evidence (Card 1) regardless of whether they were both in the first position in the series or in the last position. In other words, the less clear evidence yielded the most false judgments. Since in the first position the less clear evidence was presented to the subjects receiving the *usual* order, they showed more false judgments for the first position. Similarly, in the fifth position, the less clear evidence was presented to the subjects receiving the reverse order and hence they showed more false judgments. Thus, just as the two cards were interchanged between the first and last positions, so the relative frequencies of false judgments were interchanged.

Table 2 presents the differences obtained for each serial position by subtracting the percentage of false judgments in the reverse series from the percentage in the usual series.

An expectation derived from the two hypotheses was that in each experiment the differences would constitute a monotonically decreasing sequence, from the first through the fifth positions. Table 2 shows that this expectation is fulfilled in all experiments except Experiment I, where one difference (for the second serial position) is not in line with the monotonically de-

TABLE 2
DIFFERENCES IN PER CENTS OF FALSE JUDGMENTS FOR SAME SERIAL POSITION
(Usual order minus reverse order)

Experiment	First Card 1 -Card 5	Second Card 2 -Card 4	Third Card 3 -Card 3	Fourth Card 4 -Card 2	Fifth Card 5 -Card 1
I	10	— 7	3	0	—40
II	33	7	7	7	—13
III	40	13	0	0	—20
IV	27	13	7	7	—13
V	0	0	0	0	0
VI	20	0	0	0	—20
VII	50	40	20	0	—10
VIII	50	30	30	30	0
Mean	29	12	8	6	—15

creasing trend. The means of the differences for all experiments also fit the expectation, constituting a decreasing sequence (29, 12, 8, 6, —15).

A related expectation was that the first difference would be larger than the last difference. This proved to be the case in seven experiments, with the two differences equal in Experiment V (where social factors that operated for nonveridical judgments were not introduced). The differences for the first serial position were 50, 46, 60, 40, 0, 40, 60, and 50 per cent larger than the corresponding differences for the last serial position in Experiments I through VIII, respectively. On the average, it was 43 per cent larger. These findings support the assumption that the evidence-factor and disparity-factor made for a wider gap between the two series in the first position, where they both favored veridical judgments for the reverse series, than in the last position, where they were opposed in direction.

Still another expectation derived from the two hypotheses was that the differences would be positive numbers for the first three serial positions and negative numbers (or zero or low positive numbers) for the last two positions. Table 2 shows trends in line with this expectation but is not unequivocally in accord with it. In line with expectations, positive numbers predominate for the first three positions, which show one negative difference, six zeros, and 17 positive numbers out of 24 differences. For the fourth position zeros predominate, with five zeros and three positive differences. For the last position negative differences predominate; there are six negative numbers, two zeros, and no positive numbers. These results suggest that the evidence-factor outweighed the disparity-factor in the fifth position, but was balanced by or was itself outweighed by the disparity-factor in the fourth position. Since the evidence-factor presumably did not favor either series in the third posi-

tion (Card 3 occurred there in each series), the five positive differences there might be attributed to the operation of the disparity-factor.

E. DISCUSSION

Our results were generally, but not unequivocally, in line with the expectations derived from the two hypotheses. This of course does not mean that these two hypotheses are necessarily the most adequate means of explaining either the results or the processes that brought them about. In this discussion we shall consider a variety of factors and processes that may have contributed to the results and we shall touch on a number of interpretations and explanations of the findings. The results suggest that the effectiveness of the social forces in fostering false judgments depended on the nature of the evidence presented in the particular stimulus card. That it did not depend only on the nature of the evidence is seen in the finding that the same card yielded quite different results depending on its serial position. Moreover, that the effectiveness did not depend only on the evidence and on the serial position is indicated by differences between the reverse and the usual order when the evidence (Card 3) and the serial position (the third position) were the same in both series. The same evidence apparently had a different meaning depending on the situational context in which it occurred. [This is related to the broad problem of situational or contextual meaning (*cf.* 6, 22).] Not only the given card and serial position but the factor of ordering was important, with strikingly different effects obtained by different ordering of the evidence. Yet false judgments were not a function of only the evidence, serial position, and ordering. This is attested to by striking interexperimental differences, for the same card in the same series. In short, the results seemed to be a function of a constellation of factors that included order, serial position, nature of the evidence, and specific experimental procedures.

The finding that the reverse order yielded more veridical judgments than the usual order suggests that one way of enhancing the likelihood of veridical judgments in social-judgment situations is to begin with situations where the information offered by the social source diverges sharply from the information offered by the judgment object. The results lend some support to the hypothesis (Hypothesis D) that the greater the disparity or conflict, at the onset, between the social forces and the evidence, the less likely are subsequent judgments to conform to the same social source. There seems to be an implication here for social behavior engineering, namely, that a technique for bringing about conformity with a social source is to start with a situation where the information offered by this source deviates only slightly

(or perhaps not at all) from the veridical information offered by another source; then gradually to increase the disparity between the two sources while calling the social source "right," or in some other way reinforcing or rewarding conformity to it. It is of interest to contrast this technique with the "big lie" technique which starts with a sharp discrepancy between veridical information and the information offered by a social source. Research is needed to study the "big lie" and the "slight disparity" techniques, and to ascertain under what conditions each is more effective.

In the usual order, as the two line segments become more disparate in length, the evidence may be said to be diverging from the social influences that foster nonveridical judgments. However, in the reverse order of presentation, the evidence may be said to be converging to such social influences. Our results suggest that the effectiveness of these social influences reflects the divergence from or convergence toward the evidence. In other words, there is some tendency for subjects' judgments to diverge from or converge to the social influences as the evidence diverges from or converges to the information offered by this social source.

It is of interest to consider whether the monotonic increase in false judgments in the reverse order can be attributed to the accumulative effects of the social forces. Moreover, can the rise in false judgments from the fourth to the fifth card in the reverse order be attributed to a kind of "sleeper effect" resulting from the repetition of the social influences? After all, the further along in the series, the more times the social influences (the confederate's response, the experimenter's verdict) had been introduced. If the strength of the social influence was proportional to the number of times it had been introduced, then false judgments might be expected to increase throughout the series, both for the usual and for the reverse orders, especially for Experiments I-IV, where these forces all worked in the direction of non-veridical judgments. Although a monotonic increase was found in *most* experiments for the reverse order, a monotonic decrease was found in *all* experiments for the usual order. In fact, for the usual order the fifth card yielded less false judgments than the first card in all seven experimental variations where a social force to foster false judgments was introduced (and the same percentage as in the first card in Experiment V). The five repetitions of the social force did not suffice to overcome the change in the evidence. Moreover, although in the reverse order false judgments were at their highest in the last card (Card 1), the percentage was generally less than that found for this same card in the usual order, where it was the first card presented. In fact, the percentage of false judgments for Card 1 was less in the reverse order

than in the usual order for five of the seven experimental variations where a social force to foster false judgments was used. In other words, the repetitions of the social force in the reverse order generally were less effective in yielding false judgments for Card 1 than when this card was presented first in the usual order. Such results lead us to reject the conjecture that a social force is proportional in its influence to the number of times it is repeated in one's environment, or that a change in false judgments is necessarily due to an accumulative effect or a "sleeper effect" of the social forces. The results do not support a theory that seeks to account for social influences sheerly in terms of repetition qua repetition or in terms of contiguity. [See Luchins and Luchins (13, p. 332) for a discussion of the function of repetition in human learning that seems relevant to some of the issues involved in the present study.] As already indicated, the results suggest that the strength of social forces, rather than depending on the number of repetitions as such, may be more dependent on such factors as the relation of the information it offers to information offered by the evidence, the ordering of evidence, or previous experience with the same social source.

Contributing to the results may have been the factor of objective set or *Einstellung*, particularly since the evidence changed in a gradual and consistent manner. (In future research we intend to vary the direction of the change in a random manner, e.g., by arbitrarily permuting the order of the five cards.) As a matter of fact, the cards were originally arranged in the usual sequence in order to benefit from the possibility that, starting with little discrepancy between the evidence and the social influences, subjects would overlook the small and gradual increases in discrepancies and therefore tend to go along with the social forces. It is well-known that gradual changes in a series may be overlooked and may enhance the apparent homogeneity of the perceived stimuli [*cf.* Luchins and Luchins (13) and Wertheimer's discussion of "objective set" (22)]. *

Primacy and recency effects may also be appealed to as possible explanations of the results. [See Hovland (4) for discussions of primacy and recency factors in judgment and for interpretations of primacy in terms of *Einstellung* effects.] Primacy effects may help to explain why the initial experiences with the series influenced subsequent judgments. That the reverse order generally had less false judgments than the usual order for a given stimulus card may be interpreted as follows. Since the discrepancy at the onset was greater in the reverse order, so that subjects rejected the social influences in favor of the evidence more often than did those receiving the usual order, this initial trend tended to continue due to the operation of

primacy. Primacy may also be considered to have operated as a set, i.e., the initial experiences with the reverse (or usual) order tended to set or to direct subjects to give veridical (or nonveridical) judgments. Primacy may also be appealed to as an explanation of the smaller frequency of false judgments that the reverse order had in each of the first four serial positions. On the other hand, recency may be invoked as an explanation of results in the fifth serial position. Recency may be regarded as represented by the immediate evidence presented for judgment. Results in the fifth serial position may be interpreted as a victory of recency over primacy. In other words, recency (in the form of the evidence) finally overcame the primacy effect in the fifth position. However, primacy won out in the fourth position, where relatively more false judgments were found in the usual order even though it had the clearer evidence in that position. Moreover, recency effects may help to account for the monotonic increase and decrease in false judgments throughout the reverse and usual order, respectively. Recency, in the form of the increasing clarity of the evidence in the usual order, may be considered to have offset the primacy effect, which fostered false judgments, and hence tended to lower false judgments. Similarly, recency, in the form of the decreasing clarity of the evidence in the reverse order, may be considered to have offset the primacy effect which fostered veridical judgments, and hence tended to increase false judgments. For various explanations of primacy and recency effects in social perception and in attitude change see Hovland (4), Rosenberg and Hovland (20), and Sherif and Hovland (21).

The finding that false judgments were greater in the last card of the reverse order than in the first card is in accord with our expectations. Yet, in a certain sense, it is to us a surprising finding. Since the information from the social source had initially been in striking contrast with the evidence, this experience might have been expected to put the subject on guard against being misled by the social source. It might have led him to reject the social influence and to be evidence-oriented. Why then did more subjects give false responses to the last card of the reverse order than to the others? The relative unclarity of the evidence furnished by the last card has already been indicated as a possible determinant of this result. It has also been noted that the result might be interpreted as recency finally triumphing over primacy.

Perhaps still another factor may have been involved. Many of our subjects' comments revealed that from the beginning of the reverse order it was apparent to them that their responses conflicted with the confederate's response and/or the experimenter's verdict. Moreover, some subjects' comments suggest that they were concerned with this conflict and that they

sought to understand it and even to resolve it. Moreover, there were comments which suggested that some subjects found it uncomfortable to disagree with the confederate and/or to be called wrong. In view of such comments, the result in the last card of the reverse series might be interpreted as stemming from a disinclination to be out of harmony with the social forces or from a desire to resolve or overcome the conflict. Subjects who would not fly from the facts of the evidence, when it conflicted sharply with the information from the social source, might have welcomed the opportunity to be called right or to agree with the social source. Such an opportunity was at last offered in the final card of the reverse order, where the evidence was more ambiguous and was not as strikingly in contradiction to information from the social source as in the previous cards. The results may be interpreted as lending some support to our previously-reported conjecture that it is difficult in our society to alienate oneself from "social reality" (17). There may have been involved a desire or tendency on the part of some subjects to do what is "socially correct," to conform with "social reality" and not only with so-called "objective reality," or, at least, to try to resolve the conflict between the two. More generally speaking, since an individual has to live with both social reality and objective reality, it may be conjectured that he tries to develop a *modus vivendi*, a way of getting along with both. It may be further conjectured that social influences on judgments can result from attempts to overcome an imbalance between objective reality and social reality or can result from attempts to overcome disparities or conflicts in one's cognitive grasp of a situation. See Cartwright and Harary (1), Festinger (2), Heider (3), Newcomb (18), and Osgood and Tanenbaum (19) for several ways in which the concept of cognitive imbalance is handled in social psychology.

The tendency to overcome cognitive imbalance seems to be related to a point stressed by Wertheimer with regard to the nature of thinking.

To live in a fog, in an unsurveyable manifold of factors and forces that prevent a clear decision as to action, as to the main lines of the situation, is for many people an unbearable state of affairs. . . . Men are unhappy if the complication of such features baffle the issue; they long for a structurally clear view. . . . This may lead them astray. But one often sees, too, how this tendency to structural simplicity is deeply connected with the thirst to get at the true structure (23, p. 244).

To live in a fog, due to a conflict between social reality and objective reality, may be unbearable for many people. Social influences may be a means

of resolving the conflict, of overcoming the imbalance, and thereby achieving structural simplicity in one's behavioral world.

Perhaps theories of social influences ought to try to take into account the "tendency to structural clearness, surveyability . . . the almost irresistible tendency, the strong desire to get at a simple, decisive structurization of the field, to get clear-cut orientation" (23, p. 244). Such a tendency, as Wertheimer points out, may sometimes lead one astray even if it represents a "thirst for true orientation." Social influences may open one's eyes or may blind one to the evidence presented by the object of judgment, may lead one "to go astray" or may lead one to "the true structure." Social psychology is replete with examples of the negative effects of social influences. The positive effects have been relatively neglected. Here is an important research area (*cf.* 7).

Finally, it is tempting (but not necessarily desirable) to offer a mathematical formula that seems to fit a set of hypotheses or a set of data. We do not know of a single formula that fits the present data. However, the following formula is a compact formulation of the hypotheses from which our expectations of results were derived. We offer the formula for suggestive value and to provoke discussion and research, rather than out of any desire to tailor it to fit the results or vice versa.

The symbols in the formula are as follows:

F denotes the percentage of false (nonveridical) judgments of a given stimulus.

E denotes an index of the clarity of the judgment object with reference to the requested judgment. It is assumed that E is greater than zero.

D denotes an index of the extent of disparity between information offered by the initial judgment object (relative to the requested judgment) and the information from a social source. D is nonnegative, i.e., greater than or equal to zero.

K denotes a parameter that is constant for a given experimental procedure, but may differ for different procedures and for different kinds of stimulus material. K is nonnegative.

\approx denotes the symbol for approximate equality.

Then the formula may be stated as follows:

$$F \approx \frac{K}{E + D}.$$

Recall that E is a positive number and D nonnegative so that $E + D$ differs from zero. This assures us against inadvertently attempting division by zero.

Briefly, the formula indicates only that false judgments tend to vary inversely with the clarity of the judgment object (Hypothesis E) and also tend to vary inversely with the initial disparity between information from the social source and a judgment object (Hypothesis D).

Such a pat formula ignores the complexity of problems it poses for empirical verifications. How is E , the index of the clarity of evidence, to be determined? For example, is E proportional to the change in the evidence or to the change in the difference between two judgment objects? Specifically, in our cards, is E to change by the same amount, e.g., ΔE , whenever the difference between the lengths of the line segments changes by $1/16$ of an inch and is E to change by twice the amount ($2\Delta E$) when the change is $2/16$ of an inch? Or does a change of $1/16$ have quite a different effect on the clarity of evidence in one part of the series than in another? More generally, is it possible to have an objective index of clarity of evidence or is clarity a subjective phenomenon which perhaps does not lend itself to an objective index? And even if clarity can be gauged, is a quantitative numerical scale or index possible or can it be gauged only qualitatively? Similar questions may also be posed for D , the index of initial disparity.

If E were taken as proportional to the change in the relative length of the lines, then the formula would yield increases in false judgments throughout the usual order and decreases throughout the reverse order (except when $K = 0$). That our findings tend toward monotonic increases and monotonic decreases suggests that, if the formula is to be a guiding model, then E is not proportional to the change in lengths but perhaps increases (decreases) monotonically as the difference between the line segments increases (decreases).

There are other problems involved. For example, the formula makes no provision for the serial position of the stimulus. Yet our results suggest that the serial position may be a factor. Perhaps D , the index of initial disparity, should be modified by an index of the serial position rather than regarded as invariant throughout the series.

Moreover, the formula does not take into account still other factors that might influence nonveridical judgments. For example, subjects' "susceptibility" or "persuasibility" or "suggestibility" (5) might be influential, as might be the relation between the subject and the experimenter (or authority) as well as the relation between the subject and the confederate (model). If such factors vary considerably for different groups of subjects, or if the formula is to be applied to a given individual, then it would have to be modified. For example, if S denotes an index of the "susceptibility" or "persuasibility" of the subject or subjects, then the formula might be modified to read

K.S

$$F \approx \frac{K.S}{E + D},$$

suggesting that false judgments vary directly with "susceptibility."

Future research may suggest other modifications of the formula or perhaps suggest the inadvisability of seeking a formula into which to mold as complex a phenomenon as social influences on judgment.

F. SUMMARY

In line with a phenomenon-centered variational approach, we reversed the order of presentation of pairs of line segments. The task was to select the shorter segment in each pair, with various social influences introduced in attempts to foster correct or incorrect judgments. It was hypothesized that the clearer, the less ambiguous, or the better structured the judgment object, the less likely it is that extrinsic social forces will influence judgments of it. Another hypothesis was that the greater the disparity or conflict between the information that an individual gets from a judgment object and the initial information he gets from a social source, the less likely is he in this or successive similar judgment situations, to accept information offered by the same social source. The results generally supported expectations suggested by these hypotheses. Discussion of the results included alternative hypotheses. A preliminary mathematical formula was developed from the findings to describe compactly some of the factors that contributed to false judgments in this study.

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